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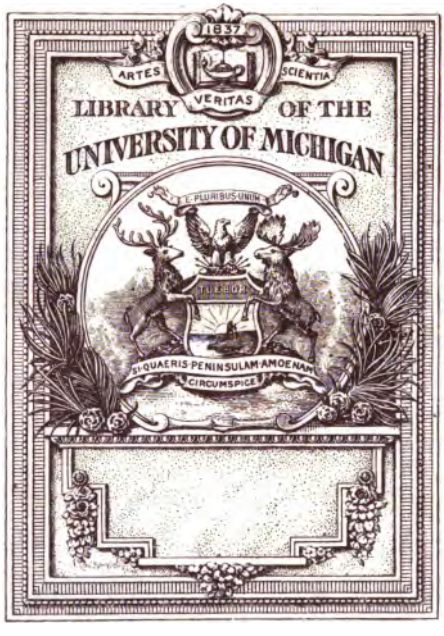

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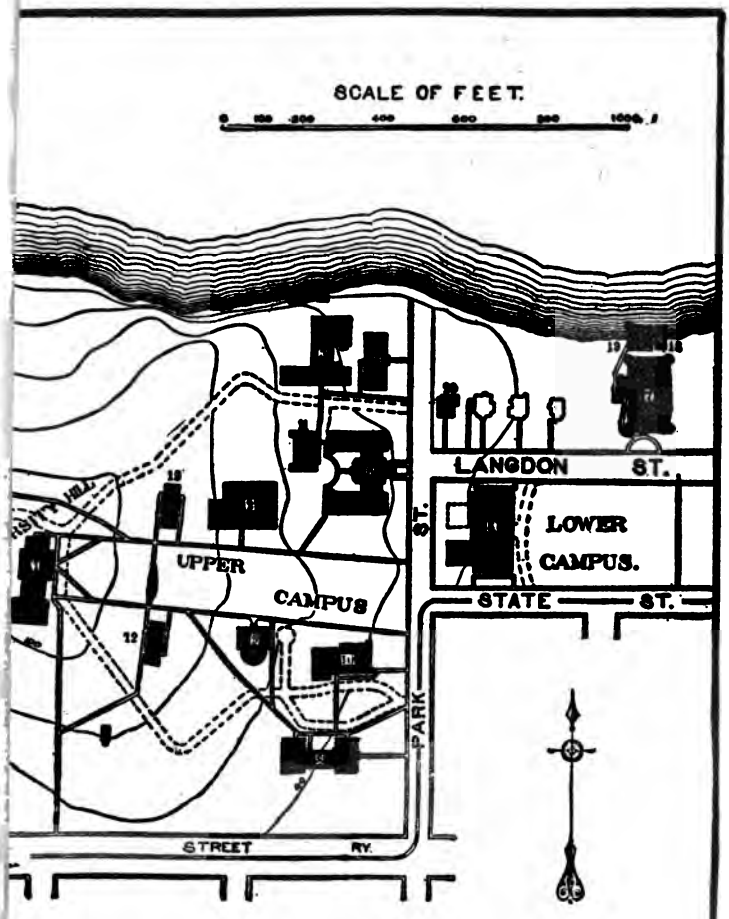

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THE

UNIVERSITY OF WISCONSIN

CATALOGUE

1905-1906

MADISON
1906

Issued bi-monthly, and entered at the postoffice, at Madison, as second-class matter

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CONTENTS

	Page
Calendar	7
OFFICERS OF THE UNIVERSITY—	
Board of Visitors	9
Regents of the University	10
Officers of the Regents	10
Officers of Instruction and Administration	11
Faculty	11
Instructors and Assistants	18
Staff of School of Music	25
Library Staff	26
Committees of the University Faculty	27
INTRODUCTION—	
Historical Sketch	29
The Support of the University	33
The University and the State	34
ORGANIZATION	36
EQUIPMENT	37
Grounds and Buildings	37
Libraries	39
Laboratories	42
University Museums	47
Washburn Observatory	51
Weather Bureau	51
GENERAL INFORMATION—	
University Regulations	52
Undergraduate Scholarships and Funds	53
Loan Funds and Student Aids	54
Societies and Publications	56
ADMISSION TO THE UNIVERSITY	60
List of Accredited Schools	75
FEES AND EXPENSES	84
DEGREES	91
COLLEGE OF LETTERS AND SCIENCE—	
Staff of Instruction	93
Requirements for the Degree of Bachelor of Arts	98
Election of Studies in other Colleges	101
Requirements for a Degree in the Course in Commerce	103
Requirements for the Degree of Bachelor of Philosophy	104
Student Advisers	105
Diplomas as State Certificates	106
Departments of Instruction—	
Philosophy	107
Education	110

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Page

History 114
Political Economy 123
Political Science 133
Greek 137
Latin 140
Hebrew and Hellenistic Greek 145
Slavic Philology 147
Romance Languages 148
French 148
Italian 152
Spanish 153
Scandinavian Languages 154
German 156
English 167
Mathematics 176
Chemistry 180
Physics 185
Astronomy 188
Geology and Mineralogy 190
Meteorology 194
Biology 195
Zoology 197
Botany 200
Anatomy 203
Physiology and Physiological Chemistry 205
Bacteriology and Hygiene 207
Pharmacy 210
Home Economics 211
Music 212
THE COURSE IN COMMERCE 214
THE COURSE IN PHARMACY 225
PRE-MEDICAL COURSE 231
HOME ECONOMICS 233

COLLEGE OF ENGINEERING—

Faculty 236
Requirements for Admission 239
Courses of Study and Degrees 249
Outline of Engineering Courses 253
Departments of Instruction 271

COLLEGE OF LAW—

Faculty 294
History 294
Admission 295
Courses of Instruction 298
Fees and Expenses 308

COLLEGE OF AGRICULTURE—

Staff of Instruction and Research 309
General Information 310
Terms of Admission 314
Degrees 315

Digitized by Google

Page
Courses 315
Departments of Instruction 317

THE AGRICULTURAL EXPERIMENT STATION 331

FARMERS' INSTITUTES 332

SCHOOL OF MUSIC—
Staff of Instruction 335
Courses of the School 336
Outline of Courses of Study 337
Tuition 342

WASHBURN OBSERVATORY 345

UNIVERSITY EXTENSION 347

PHYSICAL TRAINING 355

MILITARY SCIENCE AND TACTICS 359

SUMMER SESSION AND SUMMER SCHOOLS 363
Wisconsin Summer School 376
Summer School for Artisans 376
Summer School for Library Training 377

THE GRADUATE SCHOOL—
Faculty 378
Administrative Committee 382
Organization 382
Clubs and Societies 385
Fellowships and Scholarships 385
Degrees 387
Fees 392

DEGREES AND HONORS CONFERRED, COMMENCEMENT, 1905—
Baccalaureate Degrees 393
Higher Degrees 399
Honorary Degree 403
Honors 403

SUMMARY OF GRADUATES 405

STUDENTS—
Graduates—
Fellows and Scholars 406
Other Graduates 408
Undergraduates—
College of Letters and Science 414
College of Engineering 450
College of Law 469
College of Agriculture 473
Summer Session of 1905 488
Summer Session for Apprentices and Artisans 501
Summer Dairy School, 1905 504
School of Music 504

SUMMARY OF STUDENTS 510

APPENDIX 513

INDEX 521

Digitized by Google

1906

JANUARY.						
S	M	T	W	T	F	S
....	1	2	3	4	5	6
7	8	9	10	11	12	13
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CALENDAR

1905			
Sept.	26-27	Tu.-Wed.	Registration days.
Sept.	26-27	Tu.-Wed.	Examinations for admission.
Sept.	28	Thursday	Lectures and recitations begin.
Nov.	30	Thursday	Thanksgiving recess.
Dec.	2	Sunday	
Dec.	22	Friday eve.	Christmas recess begins.
1906			
Jan.	3	Wednesday	Exercises resumed after the Christmas recess.
Feb.	5	Monday	Final examinations, first semester.
Feb.	14	Wednesday	
Feb.	15-16	Th.-Fri.	Registration days.
Feb.	19	Monday	Lectures and recitations begin.
Feb.	22	Thursday	Washington's Birthday: University Day.
April	12	Thursday	Easter recess.
April	16	Monday	
May	30	Wednesday	Decoration Day: legal holiday.
June	9	Saturday	Final examinations, second semester.
June	15	Friday	
June	14-15	Thu.-Fri.	Examinations for admission to the University.

Commencement Week.

June	17	Sunday	Baccalaureate Address.
June	18	Monday	Class Day Exercises.
June	19	Tuesday	Alumni Day.
June	20	Wednesday	Commencement Day.

June	21	Thursday	Summer vacation begins.
June	25	Monday	Summer Session begins.
Aug.	4	Saturday	Summer Session closes.

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THE ACADEMIC YEAR 1906-07

1906		
Sept. 25-26	Tu.-Wed.	Registration days.
Sept. 24	Monday	Examinations for admission to advanced standing in the College of Law.
Sept. 26	Wednesday	
Sept. 25-26	Tu.-Wed.	Examinations for admission to the University.
Sept. 27	Thursday	Lectures and recitations begin.
Nov. 29	Thursday	Thanksgiving Day: legal holiday.
Dec. 21	Friday eve.	Christmas recess begins.
1907		
Jan. 3	Thursday	Exercises resumed after the Christmas recess.
Feb. 4	Monday	Final examinations, first semester.
Feb. 13	Wednesday	
Feb. 14-15	Th.-Fri.	Registration days, second semester.
Feb. 18	Monday	Lectures and recitations begin.
Feb. 22	Friday	Washington's Birthday: University Day.
March 28	Thursday	Easter recess.
April 1	Monday	
May 30	Thursday	Decoration Day: legal holiday.
June 8	Saturday	Final examinations, second semester.
June 14	Friday	
June 13-14	Th.-Fri.	Examinations for admission to the Unisity.
June 16	Sunday	Commencement Week.
June 19	Wednesday	

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1905-1906

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*On leave of absence for the first semester, 1905-06.
†On leave of absence for the academic year 1905-06.

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HADZSITS, GEORGE DEPUE, Ph. D., Acting Assistant Professor of Latin. *U. H.* 46. 707 State.

---

*On leave of absence for the first semester, 1905-06.
†On leave of absence for the academic year 1905-06.
‡Died February 6, 1906.

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†On leave of absence for the second semester, 1905-06.
‡On leave of absence.

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*For the first semester.
†On leave of absence for the first semester, 1905-06.
‡Resigned, February 14, 1906.

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*Resigned, February 15, 1906.
†Resigned, December 22, 1905.

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*Resigned, January 31, 1906.
†Resigned, February 15, 1906.

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*Resigned, February, 1906; succeeded by Howard Colwell Hopson.
†Appointed February 17, 1906.

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NITSCHKE, CHARLES, Violin and other Orchestral Instruments. *S. M.* 10. 321 W. Washington Ave.

OWEN, HERMAN EVERETT, Instructor in Public School Music. *S. M.* 6. 17 W. Dayton.

REGAN, ALICE S., Piano. *S. M.* 11. 321 S. Hamilton.

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SANDBERG, MRS. INGA, Piano. *S. M.* 14. 723 State.
SMITH, GENEVIEVE CHURCH, Voice. *S. M.* 11. 28 E. Gilman.

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LOTTES, WILLIAM GEORGE, Instructor in Forge Practice and Repairing. *M. S.* 213 Lake.
MARX, WILLIAM GEORGE, Assistant in Forge Room. 505 W. Mifflin.
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MEYER, MARTIN, Instructor in Creamery. 432 Warren.
SANDELL, HARVEY, Assistant in Soils. 1311 Morris.

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ADAMS, LESLIE H., Farm Superintendent. Farm House.

CROWE, BELLE, Matron. Chadbourne Hall.

DOWNER, GEORGE FORD, B. L., Graduate Manager of Athletics. *Gymnasium.* 1034 Spaight.

LOEB, MAX, A. B., General Secretary of the Alumni Association. *U. H.* 7. 121 W. Gilman.

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THE UNIVERSITY OF WISCONSIN

INTRODUCTION

HISTORICAL SKETCH

The University of Wisconsin was founded in the pioneer days of the State. In the first year of the existence of the territory (1836), an act was passed for the establishment of "Wisconsin University" at Belmont; but, except for the naming of trustees, the project was never carried out. In 1837, another act to establish the "Wisconsin University of Green Bay" resulted in the formation of a temporary local college called Hobart University. It was in 1838 that the University of the Territory of Wisconsin was provided for by law, and endowed by the act of Congress in the same year, with the customary grant of two townships of land. Its governing body, a Board of Visitors, was the only evidence of the existence of this institution.

In 1848, section 6 of the constitution of the new state declared that "Provision shall be made by law for the establishment of a state university, at or near the seat of the state government, and for connecting with the same from time to time such colleges in different parts of the state as the interests of education may require." The land grants of the United States for the support of the University were made a perpetual fund for its support, and it was provided that no sectarian instruction should be allowed in the institution. The University was incorporated by the act of July 26, 1848, and a board of regents, to be chosen by the legislature, was made its governing body. At the first meeting of this board, October 7, 1848, a preparatory department was established, to open in February, 1849, under the charge of John W. Sterling, a graduate of the University of New Jersey (Princeton). The site for the University, on "College Hill," was selected, and John H. Lathrop, a graduate, and afterwards a tutor, of Yale College, was called from the presidency of the University of Missouri to become Chancellor. He was formally inaugurated January 16, 1850 North Hall, the first building, was constructed in the same year, and opened September 17, 1851. The first class, consisting of Levi

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Booth and Charles T. Wakeley, graduated on July 26, 1854. At this time the faculty consisted of Chancellor Lathrop, occupying the chair of ethics, civil polity, and political economy, Professor Sterling, who taught mathematics, natural philosophy, and astronomy, Obadiah M. Conover, professor of ancient languages and literature, and Stephen H. Carpenter, tutor. The attendance was forty-one, exclusive of fifteen students in the preparatory course. Under Chancellor Lathrop, the group of buildings was increased by South Hall, completed in 1855, and University Hall, completed in 1859. Congress granted Wisconsin, in 1854, a second two townships of land for the University, but this, as well as the first grant, was sacrificed at low prices to attract immigration. Thus the income from the University fund was very small. Moreover, the State required the regents to construct their buildings by loans drawn from the same land fund instead of providing them by state bounty. Until 1870, the University struggled along on the meager income furnished by the lands donated by the federal government. The State made its higher education subordinate to the demand of its citizens for cheap lands.

The University in these years was critised because of its preparatory department, and because of the alleged narrowness of the curriculum. It was demanded that "a more distinct bias should be given to its instructions in the direction of the several arts and avocations as they exist among men." In 1858, as the outcome of these demands, the preparatory department was restricted in its scope, and the University was reorganized into a department of science, literature, and the arts, consisting of six schools: philosophy, philology, natural science, civil and mechanical engineering, agriculture, and polity.

Chancellor Lathrop was succeeded in 1859 by Henry Barnard, a graduate of Yale, prominent in the reorganization of the schools of Connecticut and Rhode Island, founder of the *American Journal of Education*, and (1867) first national Commissioner of Education. His policy centered in elevating the public school system of the state as a basis for university growth, but ill health caused his resignation in 1860.

Under the *ad interim* direction of Professor Sterling, the University remained without a chancellor until 1867. The Civil War took a large proportion of the students into the field, and no commencement was held in 1864, all but one of the senior class having joined the army.

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The close of the war brought a new inspiration and growth to the University. The returning soldiers took up their studies, and by 1870 the University had nearly 500 students. A reorganization was effected in 1866, and Dr. Paul A. Chadbourne, a graduate of Williams College, was called to the presidency. Among the important developments of this period was the founding of the College of Law, the maturing of plans providing for co-education, and the institution of the agricultural department as an integral part of the University. This constituted a radical departure from the policy of the other states of the middle west. In many instances agricultural and engineering colleges have been founded apart from the state university. The rapid growth of the University of Wisconsin and its hold upon the people have been in a considerable measure due to the fact that it contains within its organization the colleges which appeal to the farmer and artisan as well as to the business and professional classes of the state.

It was through the efforts of President Chadbourne that an appropriation of $50,000 was secured from the legislature of 1870 for the erection of a separate building for the women students of the University. This building, now known as Chadbourne Hall, was constructed during the following year, when Professor Sterling as Vice-President administered the University, and was first occupied in the fall of 1871.

President Twombly came to the University at the beginning of the academic year 1871-72. He was a graduate of Wesleyan University at Middletown, Connecticut, one of the overseers of Harvard College, and a founder of Boston University.

The reorganization of 1866 had provided for co-education, but for some years the work of the women was kept separate from that of the men. It was significant, however, of an increasing recognition of the importance of the education of women that the first appropriation which the legislature ever made to the University was for the women's building, and only a few years elapsed when complete co-education was adopted. Perhaps the most important development of the period of Dr. Twombly's presidency was the provision made by the legislature for a state tax of $10,000 a year to form a part of the University income. In thus adopting the policy of a special annual tax for the support of the University, the legislature made the formal explanation in the preamble to the law, that the policy of disposing of the land grants by congress at a low price, in order to attract

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actual settlers, had prevented the increase of the productive funds, and that it was the duty of the State to see to it that the University should not suffer. A system of free tuition to the graduates of the high schools of the State who passed the University entrance requirements, was also adopted at this time. This step was the beginning of the elimination of the preparatory department of the University. By resting its growth upon the high schools of the State, and receiving an annual income from the taxpayers, the University merged itself completely with the educational life of the State, and, in the long run, felt the benefits of this change.

With the coming of President Bascom from Williams College, in 1874, the University entered upon a new life. The finances of the institution were put on a better basis by the legislative grant of a tenth of a mill tax, which afforded increasing revenue as the wealth of the State increased. Large specific grants for new buildings, including Assembly Hall, Science Hall, the Chemical Building, and the Machine Shop, were made in the same period. The Farmers' Institutes and the Short Course in Agriculture brought the University into closer touch with the farmers of the State. Under Dr. Bascom's presidency the preparatory department was abolished, and the University found all the students it could care for among the graduates of the high schools. At the beginning of his presidency the attendance, excluding the preparatory department, was about 300. At its close, thirteen years later, it was but 500; but the University had thoroughly gained the respect of the State.

President Bascom was succeeded by President Chamberlin of the United States Geological Survey, a graduate of Beloit College. He gave the University a strong impulse toward graduate study by the emphasis which he laid on research. Courses of study were increased, the standards of admission raised, and fellowships provided for graduate study. When he resigned, after five years of service, in 1892, the University had doubled its numbers, rising from 500 to 1,000. During his presidency, a new science building was completed, and buildings were erected for the dairy school and the College of Law. In addition, a University boat house was built, and the contracts let for the Armory and Gymnasium, now such a prominent feature of the Lower Campus.

President Adams came to Wisconsin from Cornell, whose presidency he had just resigned. Under his administration t' ne

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University rose from 1,000 students in 1892 to 2,600 in 1901. The beautiful building for the library of the State Historical Society and the University, costing nearly three quarters of a million of dollars, and housing treasures of inestimable value, is the most impressive mounument of his presidency. The University developed into a larger life in all directions during these ten years. The increase in the number of graduate students was large and the emphasis upon graduate teaching was distinct. At the close of his presidency there were over one hundred graduate students, while ten years before there were only twenty-two. Athletics had reached their largest development in the same period, and Camp Randall, an athletic field of forty-two acres, was purchased for the University. The University began its summer sessions in 1899, a development which has been very important in increasing the influence of the University.

During the absence of Dr. Adams, caused by illness, and after his resignation, Professor Birge, Dean of the College of Letters and Science, served as Acting President during the three academic years, 1900-1903.

President Charles R. Van Hise, the first alumnus of the University to hold the presidency, was elected in the spring of 1903, and assumed the active duties of the position at the beginning of the succeeding academic year.

THE SUPPORT OF THE UNIVERSITY

The University is supported partly by the income of federal grants, partly by taxation of the people of the State, and partly by private gifts. There have been five federal grants, namely: the Two-Township Grant of 1848; the Supplementary Two-Township Grant of 1854; the Morrill Grant of 1862 for the support of studies pertaining to agricultural and mechanic arts; the Hatch Grant of 1887 for the support of agricultural experiment stations, and the Supplementary Morrill Grant of 1890.

Besides numerous and large appropriations for buildings and other specific purposes, the State of Wisconsin has made eight continuing grants, namely: the one-tenth mill tax of 1876, increased to one-eighth mill in 1883; the additional one-tenth mill tax of 1891; the appropriation for the support of the Observatory in 1887; the appropriation for the support of Farmers' Institutes in 1885, increased in 1887; the appropriation for the College of Engineering, in 1889, of one per cent. of the railroad license tax; and the additional one-fifth mill grant of 1897. The legislature of

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1899 consolidated the various mill taxes, specified above, and the grant of one per cent. of the railroad licenses, into a specific continuous annual grant of an amount equal to the annual revenue from these various grants. This appropriation was increased by the legislature of 1901, and again by the legislature of 1903.

In 1905 the laws making specific annual appropriations for the support of the University were repealed, and a two-sevenths of a mill tax was imposed for current expenses. This change resulted in a considerable increase in the income of the University. Moreover, an appropriation was made, extending through three years, for additional buildings.

Of the gifts that have come to the University, that of Dane County for the purchase of lands for the University farm, that of the late Governor C. C. Washburn for the founding of the Washburn Observatory, that of the late Judge Mortimer M. Jackson for the establishment of the Mortimer M. Jackson Professorship of Law, that of the late Dr. C. K. Adams and Mrs. Adams for the foundation of fellowships, and that of Mrs. Fannie P. Lewis for the foundation of scholarships for women, have been the most considerable and important.

THE UNIVERSITY AND THE STATE

The University of Wisconsin is the culmination of the free educational system of the State. In the educational policy of the State, the University sustains a similar relation to the high schools that the high schools sustain to the primary and grammar schools. As those who have passed through the grammar grades may freely avail themselves of the high schools, so those who have completed with credit a high school course may advance to the opportunities offered by the University. It is not expected that all pupils who complete the grammar grades will advance to the high school; nor is it expected that all who complete a high school course shall go forward to the University. But the school system of the State has been so arranged as to make the passage from one grade to another as easy and natural as possible, in order to afford every encouragement to higher education. The State through the University undertakes to furnish instruction in the various branches requisite for a liberal education, in the technical branches of engineering, law, agriculture, pharmacy, commerce, home economics, and music. It also aims to encourage research work in all departments, to produce creative scholars,

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and so do its part in the enlargement of the domain of knowledge. Thus it is the general policy of the institution to foster the higher educational interests of the State, broadly and generously interpreted. By prescribing a large number of studies during the first two years of undergraduate work, and by leaving all, or a large part, of the work of the last two years to the free selection of the student, under a definite system, the University endeavors to give a wise measure of direction, leaving at the same time sufficient room for choice to encourage individual adaptation and special development. The graduate work is, of course, wholly elective.

GOVERNMENT

The government of the institution rests upon the inherent obligations of students to the University and to the State. The University is maintained at the public expense for the public good. Those who participate in its benefits are expected, as a matter of honor, not only to fulfill the obligations of loyal members of the institution, of the community, and of the commonwealth, but actively to aid in promoting intellectual and moral interests. Every student owes to the public, in the form of superior usefulness to it, both while in the institution and afterwards, a full equivalent for its expenditure in his behalf.

The University avoids all that is sectarian or partisan; but it endeavors to extend its sympathy and influence to whatever contributes to good citizenship and high character.

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ORGANIZATION

The University embraces—

- The College of Letters and Science.
- The College of Engineering.
- The College of Law.
- The College of Agriculture.
- The Graduate School.

The College of Letters and Science embraces—

- General Courses in Liberal Arts.
- Special Courses, which include:
  - Commerce.
  - Pre-Medical Studies.
  - Pharmacy.
  - Music.
  - Home Economics.

The College of Mechanics and Engineering embraces—

- The Civil Engineering Course.
- The Sanitary Engineering Course.
- The Mechanical Engineering Course.
- The Electrical Engineering Course.
- The Applied Electrochemistry Course.
- The General Engineering Course.
- The Mining Engineering Group of Electives.

The College of Agriculture embraces—

- The Experiment Station.
- The Long Course in Agriculture.
- The Short Course in Agriculture.
- The Dairy Course.
- The Farmers' Institutes.

The College of Law embraces—

- A Three Years' Course.

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EQUIPMENT

GROUNDS AND BUILDINGS

The University of Wisconsin is picturesquely situated at Madison, the capital of the State. The University grounds comprise 450 acres, and extend for more than a mile along the south shore of Lake Mendota, a sheet of water about four miles in width and six miles in length. In the eastern part of the grounds the land rises abruptly from the lake into two summits, of which the eastern and higher, University Hill, reaches a height of about one hundred feet above the lake. The larger number of the college buildings are placed on the summit and eastern slope of this hill. The western part of the grounds is lower and more nearly level, and is occupied by the Experimental Farm, belonging to the College of Agriculture. East of the University Hill is the Lower Campus, on the west end of which stands the State Historical Society Library Building for the libraries of the State Historical Society and the University. (For an account of this building, see Index, under Libraries.) The rest of the Lower Campus is used for athletic sports and as the drill ground for the military department. At the session of 1893 the legislature provided for the purchase of Camp Randall for an athletic field. This is a tract of ground comprising forty-two acres, adjoining the University grounds to the southwest. In 1898 one hundred and sixty acres were purchased for a special experimental farm for the College of Agriculture, to which, in 1903, sixty acres were added.

The buildings of the University that are used for instructional purposes are sixteen in number. The oldest three—North Hall, South Hall, and University Hall—stand on and near the eastern summit of University Hill. North Hall was erected in 1850-51, and was opened for instructional purposes on September 17, 1851. It is now occupied by the departments of German and Commerce. South Hall was erected in 1855. It contains the office of the Dean of the College of Letters and Science; offices, lecture rooms, and laboratories for the departments of Bacteriology, Home Economics, Hebrew and Hellenistic Greek, the Hygienic laboratory; and the offices of the Wisconsin Geological and Natural History Survey.

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University Hall, the construction of which was authorized by the legislature in 1857, was completed in 1859; it has since been materially changed; a new portico, a new dome, and a large south wing were added in 1897-99. This building contains the lecture and recitation rooms for most of the departments of language and literature, Mathematics, History, and Philosophy. On the first floor of the new wing are the offices of the President and the Registrar. These buildings as originally erected were paid for out of the money derived from the sale of lands granted by the national government.

Across the east front of the Campus, at the foot of University Hill, is a row of buildings, erected at the expense of the State of Wisconsin. At the south is Chadbourne Hall, the dormitory for young women; it was built in 1870 and remodeled and enlarged in 1896 (see Index). Next stands Assembly Hall, completed in 1879; the rear part, occupied by the University Library until the summer of 1900, has been remodeled for the School of Music. Still farther north is Science Hall, the largest and most costly of the University buildings, completed in 1887, containing the lecture rooms, laboratories, and museums of the departments of Physics, Geology, and Biology (including Anatomy), and also the laboratory of Psychology. Next to Lake Mendota is the old Chemical Laboratory, built in 1885, and now occupied by the departments of Chemical Engineering and Physiology. To the rear of this are the Machine Shop and the central heating plant, both built in 1885, and enlarged in 1894. To the west of Science Hall, on the north side of the Campus, is the Engineering Building, erected in 1900. Opposite this, on the south side of the Campus, is the Law Building, erected in 1893, which, in addition to the library, lecture rooms, and offices of the College of Law, contains the offices of the Regents.

Southwest of University Hall, on the level tract of land fronting on University Avenue, stands the new Chemical Building. It was begun in 1904, and was available for instructional purposes in the fall of 1905. The central part of the building is 80 by 188 feet, with two wings, each 51 by 61 feet, all three stories in height. The 80-foot front is of Bedford stone; the rest of the exterior is of sand-lime brick, which matches the stone front in color, giving the effect of a solid stone building. When the building is complete, with future additions as planned, the whole exterior will be of Bedford stone. The light-colored brick will then face the light-

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courts. The building contains an auditorium seating five hundred persons, four smaller lecture and seminary rooms, and a library. Besides these there are large laboratories for organic, inorganic, analytical, physical, and pharmaceutical chemistry, with special laboratories for advanced work in each of these branches. The equipment of the building will be modern and complete throughout, affording the best of facilities for work in all departments.

Directly west of University Hill is Observatory Hill, upon which stands the Washburn Observatory, erected in 1878 through the munificence of the late Gov. C. C. Washburn. Near it are the Students' Observatory and the residence of the Director. On the western slope of Observatory Hill are the Hiram Smith Hall (for the Dairy School), constructed in 1891, the Horticultural-Physics Building, begun in 1893 and completed in 1896, and the new Central Agricultural College building, first occupied in 1904, a description of which may be found in that part of this catalogue devoted to the College of Agriculture. Farther west lie the barns and buildings of the Experimental Farm and the residence for the Dean of the College of Agriculture.

Between the Lower Campus and the lake stands the Armory and Gymnasium, authorized by the legislature of 1901, and between this and the lake is the University Boat House.

LIBRARIES

The libraries at Madison, all of which are at the service of members of the University, are five in number, viz., the Library of the University of Wisconsin, the Library of the State Historical Society of Wisconsin, the Library of the Wisconsin Academy of Sciences, Arts, and Letters, the State Law Library, and the Madison Free Library. These libraries duplicate books only to supply exceptional demands, and have an effective strength approximately equal to the total number of volumes possessed by them. The total number of bound volumes in all the libraries is about 317,000, and the number of pamphlets exceeds 170,000.

The first three libraries above named are all housed in the new library building of the State Historical Society on the Lower Campus of the University. This building, erected by the State of Wisconsin at a cost of $610,000, was occupied in the fall of 1900, and affords exceptional facilities in the way of convenient and commodious quarters to University students. In the planning of the building, the special needs of the University were consulted.

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In the south half of the first floor are located four department libraries of the Historical Society, viz., documents, newspaper files, patents, and maps and manuscripts. In the north end of this floor is a series of six seminary rooms, allotted to American history, European history, economics, political science, and mathematics. The greater part of the second or main floor is occupied by the general reading room and the periodical room, which are used in common by the two libraries. In these two reading rooms 275 readers may find ample accommodation at one time. In open cases in the reading room are shelved several thousand reference and "reserved" books. To these, as well as to the large collection of general and engineering periodicals in the adjoining periodical room, all readers have direct access. The main portion of both libraries is stored in the stack wing adjoining the delivery room on the west. Officers of the University have direct access to the shelves in all parts of the library, and students engaged in advanced work, upon recommendation of their instructors, are allowed access to those parts of the collection dealing with their special subjects.

The administrative rooms of the Historical Society and of the University library are situated at the south and north ends of the second floor respectively. The north end of the third floor is occupied by six seminary rooms, for the departments of German, Latin, Greek, Romance Languages, English, and Philosophy and Education. The south end of the third floor contains a small lecture hall, a room set apart for the Wisconsin Academy of Sciences, Arts, and Letters, and two small administrative rooms. The museum and gallery of the Historical Society occupy the fourth floor.

The library is open fourteen hours daily, during the academic year, except on Sundays and legal holidays. At the opening of the college year introductory lectures on the use of the library are given to new students by the University librarian.

The Library of the University of Wisconsin, including its branches, contains about 113,000 volumes and 33,000 pamphlets. The catalogue is the usual dictionary card catalogue of authors, subjects, and titles in one alphabetical arrangement. Subject to certain restrictions, books may be drawn by all members of the University. Students are required to make a guarantee deposit of $2.00 with the Secretary of the Regents preliminary to borrowing books from the library. This amount is refunded on pre-

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senting to the Secretary the library deposit card properly endorsed by the Librarian.

In general, the library aims to be uniformly developed in all fields, but appropriations and gifts in recent years have rendered it specially strong in the lines of economics, political science, and Germanic and classical philology. Through the kindness of Professor E. T. Owen, the library contains on deposit the Owen library of works on French language and literature, numbering 900 volumes. In 1899, liberal German-American citizens of Milwaukee contributed the sum of $3,150 for the purchase of a Germanic philology seminary library. This fund has been expended to supplement and develop the German department of the library, thus furnishing excellent facilities for the study of the German language and literature. During the academic year 1900-1901, the library received two notable gifts, one of $2,000 from three Milwaukee citizens for the purchase of books for the department of Commerce, and the other of $2,645, contributed by friends of the University in New York City, Milwaukee, and elsewhere, to the departments of Economics and Political Science for the development of the library in those fields. In 1901, the late President Charles Kendall Adams presented to the University his private library of 2,000 volumes. A gift of $500 from Mr. Frederick Vogel of Milwaukee, in 1902, has been expended for a collection of 600 volumes in the field of political science and modern French legislative history. A collection of 500 volumes on political science was presented in 1904 by Mr. John Kremer of Milwaukee. A fund of $250 was given in 1903 by the Milwaukee Gas Light Company, the annual income of which is to be used for the purchase of the *Zeitschrift für Farben und Textil-Chemie*, and works on related subjects. In 1905, Mr. James J. Hill of St. Paul presented $5,000 to be expended for the development of a library on transportation.

The College of Law has a special library of 15,000 volumes; and the Washburn Observatory is provided with the Woodman Astronomical Library, now containing 2,600 books and 2,700 pamphlets. The agricultural library of about 8,000 volumes is located on the first floor of the new Agricultural Hall. In the reading room of the Engineering Building are kept the current files of about 175 of the most important engineering and technical periodicals, together with a collection of enginering reference books.

The Library of the State Historical Society contains over

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140,000 volumes and 135,000 pamphlets. It is exceptionally rich in manuscript and other material for the study of the history of the Mississippi valley. The files of newspapers, periodicals, and publications of historical societies are among the most complete in the United States. There is an unusually comprehensive collection of published colonial records and United States government documents, and the material for the study of American state and local history, western travel, the Revolution, slavery, and the Civil War, is abundant. In English history the library possesses the Calendars of State Papers, the Rolls Series. the publications of the Camden Society, the Records Commission, and the Historical Manuscripts Commission, the journals and debates of Parliament, and several important collections for the study of local history.

The Library of the Wisconsin Academy of Sciences, Arts, and Letters is a valuable collection of reports and transactions of learned societies, comprising about 5,000 volumes. It is located in the library building, and constitutes a useful supplement to the other libraries in this special field.

The State Law Library in the Capitol numbers about 42,000 volumes. Students are allowed to draw books from the Madison Free Library, located in the new Carnegie library building. This is a well selected collection of over 17,000 volumes.

The excellence and extent of these libraries is such as to make Madison among the first, and in some departments the most important, of library centers west of the Alleghanies.

LABORATORIES

CHEMICAL LABORATORIES.—The chemical laboratories are located in the new chemical building, a large structure devoted exclusively to chemistry and pharmacy. On the first floor are the beginners' laboratories accommodating five hundred and forty students, and the laboratories of advanced inorganic chemistry accommodating eighty students. On the second floor are the laboratory of qualitative analysis accommodating one hundred and twelve students, the laboratories of quantitative analysis accommodating one hundred and twenty-one students, the food laboratory accommodating ten students, and the laboratory of practical pharmacy accommodating twelve students. On the third floor are the laboratories of physical chemistry accommodating fifty-six students; the laboratory of electrochemistry accommodating twenty-four students; the laboratories of organic

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chemistry accommodating sixty-four students; and the laboratory of pharmaceutical chemistry accommodating forty-eight students. The building also contains a large auditorium with a seating capacity for five hundred and four persons, and three additional lecture rooms, one on each floor, seating sixty persons each. On the second floor, there is a seminary room with a seating capacity for about sixty students, and on the third floor a library and reading room with a capacity for about fifty students. Besides the rooms mentioned, the building is well supplied with offices, private laboratories, smaller laboratories for special work, dark rooms, balance rooms and store-rooms. All the laboratories are well lighted and well equipped for the work for which they have been designed. The supply of chemicals and apparatus is unusually good; and the chemical library contains complete files of all the important chemical journals, and is well supplied with reference books and other works on chemistry and allied subjects. The chemical department is therefore able to offer exceptionally good facilities, not only for the pursuit of the usual courses in chemistry, but for original investigation as well. Research is especially encouraged, and such additional facilities as may be required for any special piece of work are furnished by the department when needed.

PHYSICAL LABORATORIES.—The instruction in the department of physics is designed to meet the needs of all classes of students, from those just entering, with no knowledge of the subject, to those who have been well trained, and who are prepared to continue in the more advanced courses or take up a line of original investigation.

The physical laboratories are located on the first floor and in the basement of Science Hall, and are commodious and well lighted. Besides the lecture room and the large apparatus room, the first floor contains the general physical laboratory, which is new and complete in its appointments in every respect. The lecture room has a seating capacity for 150 students, and is provided with all the appliances to facilitate a complete course of experimental lectures. In the basement are three large general laboratories for undergraduate work and a number of laboratories for special investigation, all of which are liberally supplied with piers to insure perfect stability of the instruments used. A well-equipped workshop under the direction of a skilled mechanic is an important feature of the department. Besides current supplied

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from the numerous dynamos in the University shops, the various rooms of the physical laboratory are connected with the electric light and power circuits of the city.

The physical apparatus includes, in addition to the equipment for demonstration purposes, an excellent collection of instruments adapted to measurement and investigation. The laboratory offers special facilities for carrying out graduate study and research.

MINERALOGICAL LABORATORY.—The laboratory of mineralogy is located on the second floor of Science Hall, where desks and chemical reagents for courses in blow-pipe analysis and determinative mineralogy are provided for a class of forty students; there is also a goniometer room which can be darkened for the study of crystals. In the mineralogical lecture room are the necessary models of crystals in glass and wood, and working collections of crystals and minerals.

PETROGRAPHICAL LABORATORY.—This laboratory is supplied with polarizing microscopes, other necessary apparatus, and a very complete set of rocks and of rock and mineral sections, for courses in optical mineralogy and petrology. The general and special collections mentioned under the caption of Museums are available for all advanced students of petrology.

GEOLOGICAL SEMINARY.—This room is fitted out as a department library with a full equipment of reference books, maps, charts, etc.

BIOLOGICAL LABORATORIES.—The elementary laboratory for the departments of botany and zoology is arranged to accommodate seventy-two students, and is provided with compound microscopes, dissecting microscopes, and other apparatus necessary to an elementary course in botany and zoology. The departments have about ninety compound microscopes, chiefly by Leitz and by Bausch & Lomb, fitted for elementary and advanced work.

BOTANY.—The laboratories for advanced work in botany are fitted up with the apparatus and reagents necessary to advanced courses in vegetable morphology, histology, physiology, and cytology. A green house and a laboratory, also under a glass roof, occupy the fourth floor of the south wing of Science Hall, and have been specially equipped for work on the development and physiology of the lower plants, and for plant pathology. A special laboratory is provided for work in general physiology, and is equipped with apparatus for advanced and research work on irritability, protoplasmic motions, reproductions, etc. All necessary reagents, ovens, paraffin baths, and microtomes are provided for histological

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and cytological work. A considerable amount of apparatus for work on the special physiology of the flowering plants is also provided.

ZOOLOGY.—For advanced work in zoology laboratories have been equipped with all necessary apparatus for regular classes, or for any special work that the student may elect. Compound and dissecting microscopes, microtome, paraffin bath, reagents, etc., are included in the equipment and are at the disposal of the students. In connection with much of the work done in zoology. use is made of the museum which contains, besides the regular exhibit collection, special sets which have been purchased especially for use in the lecture room and laboratory. These include cases illustrating protective coloration, mimicry, sexual dimorphism, etc., Many models are used in the laboratory; a nearly complete set of Ziegler models illustrating life-histories of invertebrates, besides a large number of Blatschka models, especially rich in protozoa and coelenterata. A large collection illustrating the life histories of insects, both alcoholic and dry preparations, while exhibited in the museum, have been purchased especially for lecture and laboratory work. A dark-room, equipped with electrical and other apparatus, has recently been added for the study of animal behavior.

For courses in invertebrate zoology and entomology laboratories have been equipped for carrying on the regular courses of advanced work that the students may elect. In connection with the laboratories, and to be used by the students, are museum collections, especially the sets of models and life histories, and a number of smaller collections for the laboratory and the lecture room.

Anatomy.—There are laboratories devoted to human anatomy, vertebrate anatomy, histology, and embryology. The histological laboratory is provided with a full equipment of microscopes, microtomes, and the various stains and reagents necessary for the work. For illustrating the lectures in histology there are a large number of models, wall charts, and an extensive set of lantern slides to which additions are being constantly made. For the work in embryology a similar equipment is provided. For the study of human anatomy a supply of well preserved material is maintained. A large number of models by Steger of Leipzig, Tramond of Paris, Ziegler of Freiburg, Auzoux of Paris, and other well-known firms are provided to assist the student in his work. Each student has the use, under proper restrictions, of these

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models and of skeletons, articulated and disarticulated skulls, ligament preparations, etc.

For those prepared to carry on advanced research special laboratory facilities are provided.

A Journal Club meets bi-weekly for the discussion of important contributions to anatomical science.

Bacteriology.—The laboratories for the College of Letters and Science are located on the fourth floor of South Hall; those for the College of Agriculture on the first and second floors of the Agricultural Building. The laboratories in South Hall consist of a suite of nine rooms, including a large general laboratory and an advanced laboratory with special rooms for individual research.

THE AGRICULTURAL LABORATORIES.—The well-equipped laboratories of the College of Agriculture provide unusual opportunities to students, especially those pursuing advanced work, because of the wide range of both practical and research efforts conducted by the Experiment Station. The chemical department, for example, is, by legislative action conferred upon the Station, entrusted with the supervision and licensing of commercial concentrated feeding stuffs and commercial fertilizers sold in the State. The Horticultural department has charge of nursery inspection, likewise by legislative act. The Agricultural Bacteriological department is in close association with the State Live Stock Sanitary Board in matters relating to animal diseases. The Dairy department converts more than four million pounds of milk annually into various commercial dairy products. The large complement of live stock at the farm is in use at all times in feeding experiments. The Physics department conducts soil and plant culture researches. The Agronomy department is striving to improve our grains and forage plants. The Agricultural Engineering department studies the various implements used on the farm. All these efforts converge in the laboratories of the College, giving unusual force and character to all work done therein.

THE STATE HYGIENIC LABORATORY is located on the third floor of South Hall, and the abundant material here furnished for diagnostic purposes is also utilized for class room and research work.

THE PSYCHOLOGICAL LABORATORY.—The laboratory is to occupy a suite of eight rooms on the basement floor of the north wing of University Hall. The equipment is especially designed to meet the needs of practical experiments and demonstrations for the

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courses in psychology, and to give opportunity to students of psychology to study the methods and results of psychological problems. There are special facilities for original research in many directions, while provisions are also afforded for the practical application of results and tests to educational problems.

Publications setting forth the results of special studies undertaken in the laboratory have appeared in the *American Journal of Psychology*, the *Psychological Review*, the *Educational Review*, the *Popular Science Monthly*, and elsewhere. Four series of special papers of this kind have been published, and others are in preparation. Theses involving experimental inquiry are arranged for the baccalaureate and advanced degrees.

The Engineering, Assaying, Pharmacy, and Agricultural laboratories are described under their respective departments.

UNIVERSITY MUSEUMS

OFFICERS

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
ROBERT A. HARPER, Ph. D., Professor of Botany, Curator for Botany.
WILLIAM S. MARSHALL, Ph. D., Associate Professor of Entomology, Curator for Zoology.
WILLIAM S. MILLER, M. D., Associate Professor of Vertebrate Anatomy, Curator for Vertebrate Anatomy.
WILLIAM H. HOBBS, Ph. D., Professor of Mineralogy and Petrology, Curator for Mineralogy and Petrology.
N. M. FENNEMAN, Ph. D., Professor of General Physiographic Geology.
C. K. LEITH, Ph. D., Professor of Economic and Structural Geology, Curator for Economic and Structural Geology.
ROLLIN H. DENNISTON, Ph. D., Curator for Pharmaceutical Collections.

The University museums comprise the Anatomical Museum, the Geological and Mineralogical Museum, the Biological Museum, the Herbarium, and the Drug Cabinet, which occupy respectively the second and third floors of the south wing of Science Hall. The collections in the College of Engineering and the College of Agriculture are described on later pages.

THE ANATOMICAL MUSEUM is at present located on the fourth floor of Science Hall. It is primarily designed as an aid in teach-

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ing and investigation, and includes both human and comparative vertebrate anatomy.

In osteology there is a complete series of human skeletons from the embryo through foetal life up to, and including, the adult. The collection includes a number of articulated and disarticulated skulls. In addition to the above there is a representative collection of vertebrate skeletons displayed in the Zoological Museum. Arthrology is represented by a series of preparations which show the ligaments of all the principal joints. Myology, angiology, and splanchnology are represented by numerous preparations including dissections and frozen sections, the best of the His models made by Steger, of Leipzig, some of which represent the viscera *in situ*, while others show the individual organs removed from the body. In neurology the collection includes the plaster casts of brain dissections by Steger and by Fuller, the series of His models showing the development of the brain, made by Ziegler, and models showing the principal fiber tracts of the cord and medulla. Peripheral nerves and sense-organs are illustrated by models by Tramond and by Auzoux. In embryology there is a series of the models made by Ziegler, a collection of embryos, human and vertebrate, preserved in formalin, and a series of dissections of embryos of various ages. In the museum there is also a number of models and special preparations made in the laboratories for teaching purposes, or to illustrate special investigations.

THE GEOLOGICAL AND MINERALOGICAL MUSEUM has been built up for the most part with special reference to instructional work. It is divided into four parts, one devoted to systematic paleontology, one to systematic collections of minerals and rocks, one to a systematic collection of ores, and another to relief models illustrating topographic and geologic features. The paleontologic section includes the Powers collection of Wisconsin Silurian fossils and also the Wisconsin Academy of Arts, Science, and Letters collection containing the type fossils described in the volumes of the first Wisconsin Geological Survey of Wisconsin. In the mineral and rock section is included the Henry collection from southwestern Wisconsin and several of the well-known illustrative collections of rocks.

A large amount of the general illustrative material, not coming directly under the above heads, is exhibited in cases in the halls of the geological department.

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A number of additional collections are at present stored in the lecture rooms, laboratories and offices, and are accessible to students interested. These include a collection of 40,000 specimens and 20,000 thin sections, belonging to the Pre-Cambrian and Metamorphic Division of the United States Geological Survey, one of the largest of its kind in the world; a large collection of New England rocks belonging to the same survey; the collections of the Wisconsin Geological Survey; and the Hobbs collection, mainly of European rocks, supplied with over 1,000 thin sections. Of technical interest are the special collections of metallurgical, pharmaceutical, and engineering specimens, and the collection of Wisconsin building stones and clays made by the Wisconsin Geological Survey.

THE ZOOLOGICAL AND BOTANICAL MUSEUM is in the third story of the south wing of Science Hall, directly above the geological museum. Among the specimens at present placed in the cases may be named a good collection of vertebrate skeletons; a complete set of Ziegler models illustrating various stages in the development of vertebrates and invertebrates; models of the brain and sense organs; a large number of Blaschka glass models of invertebrates; an alcoholic collection of invertebrates from the Naples Zoological Station; representative collections of echinoderms, corals, and mollusks. The botanical cases contain a collection of Auzoux models of flowers and a collection of specimens of wood. The Owen collection of Lepidoptera, comprising 5,000 species, and over 20,000 specimens, is deposited in Science Hall.

THE HERBARIUM of the University (Room 41, Science Hall) includes the Lapham collection, chiefly of flowering plants, purchased by the State from the estate of I. A. Lapham, of Milwaukee. This collection, which contained about 8,000 species, has been mounted and arranged and is now accessible for study. The Wisconsin plants have been separated from the rest, and it is the intention to make them the nucleus of a complete representation of the Wisconsin flora. Large additions have been made to this herbarium by Professors L. S. Cheney and H. L. Russell. Mr. Lapham's collections also included a considerable number of algæ, lichens, and mosses. The collection of mosses has been very greatly extended by gifts, purchases, exchanges, and collections acquired, so that it now includes almost all of the species known to North America, besides a large number of those from other countries. Many valuable types and sets of exsiccati are included.

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The collection of algæ and parasitic fungi contains the principal North American exsiccati as well as large local collections. There is also a large and rapidly growing collection of alcoholic and dried specimens of the fleshy fungi of the State.

The biological seminary room contains a department library with the main reference books and periodicals in zoology and botany, and card catalogues of biological literature.

THE DRUG COLLECTION.—At present this collection contains about 4,500 sample specimens of drugs for purely illustrative purposes. Each year large additions come to it as contributions from various sources. Among the larger contributors are Schimmel & Co., of Leipzig, Germany, Lehn & Fink, Parke, Davis & Co., and Gilpin, Langdon & Co. The collection is well supplied with drugs of Asiatic origin. Notable among them are a collection of fifty Ceylon drugs and medicines and a collection of more than one hundred Malay medicines.

THE CHEMICAL COLLECTION.—The collection here described is located in North Hall. Through the liberality of the United Alkali Company of England, some fifty specimens of their products in various stages of manufacture were obtained. Dr. William Simon, of Baltimore, has contributed a series of specimens illustrating the manufacture of bichromate and ferrocyanide of potassium. Fries Bros., of New York have donated a number of synthetics used in perfumery. A similar collection has recently been received from the Herbene Chemical Co. of New York. A cabinet for volatile oils contains fine collections from Schimmel & Co., of Leipzig, Germany; Bertrand Fils of Grasse, France; Dodge and Olcott, New York; and others. A cabinet for dye-stuffs contains over 350 samples of artificial dye-stuffs from the Farbenfabriken of Elberfeld & Co. of New York. This collection is supplemented by ten volumes of richly illustrated descriptive matter, to which additions are being constantly received. Large and valuable collections of modern synthetic new remedies have been received from Schering and Glatz, the Farbenfabriken of the Elberfeld Company, and from Merck & Co., all of New York. Numerous smaller donations have been received within recent years.

When the museums are not open to the public, access may be gained by visitors at all reasonable hours by calling upon the janitor of the building.

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THE WASHBURN OBSERVATORY

The Washburn Observatory is primarily an institution for research, and an account of its equipment and the character of the work there undertaken may be found on a later page. (See Index). But it is also utilized as a part of the instructional equipment of the University for students of all stages of advancement. It is open to the public on the first and third Wednesday of every month, from 7:30 to 9:30 P. M., provided the evening is clear, and at these times visitors may look through the large telescope and examine the most interesting objects of the sky.

THE WEATHER BUREAU

The U. S. Government maintains at the University, in charge of a regular Observor, a fully equipped Weather Bureau station of the first class. Weather observations are taken and telegraphed twice daily, and weather maps and forecasts are issued each forenoon except on Sundays and holidays. The equipment of the station includes the usual non-recording instruments and also automatic registers for making a continuous record of pressure, temperature, wind direction and velocity, sunshine and rainfall. The exposed apparatus is mounted on the roof of North Hall, while the registers are located in the local office of the Weather Bureau in Room 84, in the same building. This office is open to the public from 9 A. M. to 4 P. M. daily, except on Sundays and holidays. Visitors are especially welcome during the afternoon hours.

The courses in Meteorology are given on a later page. (See Index.)

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GENERAL INFORMATION

UNIVERSITY REGULATIONS

THE UNIVERSITY YEAR

The regular University year opens on the last Wednesday in September. There are two semesters in each year. The first semester ends on the Friday at the middle of the University year, not including recesses. The second semester begins on the succeeding Monday, and ends with the annual Commencement, on the thirty-ninth Wednesday of the University year.

The Christmas vacation ordinarily begins at the end of the second day before Christmas, and closes at the beginning of the second day after New Year's. When, however, Christmas falls on Monday or Tuesday, the vacation begins at the end of the Friday preceding, and when New Year's falls on Thursday, or later in the week, the vacation closes at the beginning of the following Tuesday. The Easter recess begins on the Thursday morning before Easter Sunday, and closes on the morning of the following Tuesday.

STUDENT ADVISERS

In the College of Letters and Science, the College of Engineering, and the College of Agriculture, each student is placed under the immediate charge of a member of the Faculty, who acts as his adviser in matters pertaining to University work. The student must consult his adviser in choosing studies, and obtain his approval before classes can be entered.

The system of student advisers varies somewhat in the colleges mentioned above, and does not obtain in the College of Law and the School of Music.

HONORS

Honors are given at graduation for special work of high order of excellence done in any department. Such honors will be voted by the Faculty to those students whose graduation theses show exceptional excellence, and who have completed with unusual

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success a long course of study in the department in which the thesis is presented. The thesis must show work additional to all requirements for graduation equal to two hours a week for one year. Students desiring to become candidates for special honors in any department must make application to the Faculty, at the opening of the second semester, through the professor in whose department the honors are sought.

UNDERGRADUATE SCHOLARSHIPS AND FUNDS

SCHOLARSHIPS FOR UNDERGRADUATES

The Amelia H. Doyon Scholarships

By the will of Mrs. Amelia H. Doyon, late of Madison, the University has received a gift of $5,000, to be known as the Amelia H. Doyon Fund. The income from this fund is to be divided into two equal parts, to be designated as the Amelia H. Doyon Scholarships, which are to be given to young women in attendance at the University, to be selected by the Faculty. In making this selection the Faculty is to take into consideration the scholarship or standing of the persons selected and their need of financial help. Neither of these scholarships is to be bestowed on any young woman who has not been in attendance as a student at the University of Wisconsin for at least one year.

Hebrew and Hellenistic Greek Scholarships

The Biblical Alliance of Wisconsin offers a sum of money, at present amounting to $1,500, to provide scholarships for the encouragement of study in the department of Hebrew and Hellenistic Greek. These may be held by graduates or undergraduates. Award is made on basis of excellence. Information regarding the scholarships will be given on application to Professor W. H. Williams.

For the graduate scholarships, see the Graduate School.

The Lillian Paige Allis Scholarships

Through the liberality of Mrs. Lillian Paige Allis, of Madison, the department of German offers two scholarships, one open to juniors and the other to seniors, having a value of $50 and $100 respectively.

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The Christian R. Stein Scholarship

By the will of the late Christian R. Stein, of Madison, a bequest of $1,000 was made to the University, the interest of which maintains a scholarship to be given by the Faculty to a student of the University who has been in attendance at least one year.

The Frederick C. Thwaits Scholarship

Mr. Frederick C. Thwaits, of Milwaukee, has generously made provision for an annual scholarship of $250, to be awarded to a young man in the graduating class of one of the Milwaukee high schools, on a basis of scholarship and need of financial assistance. In 1906 this scholarship will be assigned to the East Division High School.

The Henry Gund Scholarship in German

Mr. Henry Gund, of La Crosse, has generously given $250 for a scholarship in German for the academic year 1905-06.

LOAN FUNDS AND STUDENT AIDS

The John A. Johnson Fund

The University is indebted to the liberality of the Hon. John A. Johnson, late of Madison, for a fund of $5,000, the interest of which is loaned to students. The sum obtained by one student in one year shall not exceed $50, and the total amount shall not exceed $200. At present the benefits of the fund are limited to Scandinavian students. The income of this fund is loaned by a sub-committee of the Faculty Committee on Loan Funds, consisting of Professors Olson and Bull.

The Graduating Class Fund

The class of 1900 gave to the University several hundred dollars, the profits of the Senior Class Play, as the nucleus of a loan fund for the aid of needy students, to which the succeeding classes have made substantial additions. The money hitherto received has been loaned to students on promissory notes. This fund is under the charge of the Faculty Committee on Loan Funds, consisting of the President of the University, Professor Storm Bull, Chairman, and Professors Olson, Voss, Gay, and Mayhew.

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The Secretary's Fund

The Secretary of the Regents in 1900 established a fund of $500 for the aid of meritorious students. Additions to the fund have been made by others. No loan shall exceed $50 in a single year, and the aggregate loans to any person shall not exceed $200. This fund is managed by the Secretary.

The Geneva Loan Fund

This fund of $450 was provided in December, 1903, by Mrs. E. P. Allis and Mr. Louis Allis, of Milwaukee, and by Mr. Frank W. Allis (member of the Short Course class of 1897), proprietor of Monona Farm, Madison. It is available to needy members of the Short Course classes of the College of Agriculture only, in small amounts. Loans from this fund may be made through the Dean of the College of Agriculture.

Employment Bureau

The Young Men's Christian Association of the University conducts an employment bureau for the benefit of those students who find it necessary to contribute to their own support. Students who are willing to do good work can, in most cases, be supplied with remunerative employment. The positions that are most frequently supplied are: waiting on table, tending furnace, assisting in the house, caring for lawns, and serving as stenographer, typewriter, or clerk. In 1904-05 nearly four hundred positions were secured for over one hundred men, representing about $6,000. The General Secretary of the Young Men's Christian Association has direction of the employment, having his office at Association Hall. Students who must earn part of their expenses should communicate with the Secretary before they come to the University.

PRIZES IN RHETORIC AND ORATORY

The Steensland Prize in Debate and Essay

Hon. Halle Steensland, of Madison, has given the sum of $300, to be known as The Steensland Prize in Debate and Essay. One hundred dollars is to be awarded each year, beginning in 1905-06, as follows: Seventy dollars to the best three debaters in a debate open to all the students of the University, to be thus apportioned: Forty dollars to the one who stands first in such contest; twenty dollars to the second, and ten dollars to the

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third. Thirty dollars of the one hundred is to be given for the best essay. For the three years the subjects are: (a) Good citizenship: What is it, and how can it best be promoted. (b) The habit of punctuality a prime element in character, and an important requisite for a successful life. (c) The simple life: What is its scope and its value.

The Cream City Prize in Oratory

There has been presented to the University by five citizens of Milwaukee, the sum of $500, to be known as The Cream City Prize in Oratory. One hundred dollars will be awarded each year to the winner of the Final Oratcrical Contest in the University, which is preliminary to the Northern Oratorical League Contest. The friends who have generously given this prize are: Mrs. E. P. Allis, Mr. James M. Pereles, Mr. Frank Bigelow, Mr. Howard Green, and Mr. William M. Osborne.

The Albert O. Trostel Prize in Debate

A sum of $500 was given, in 1905, by Mr. Albert O. Trostel, of Milwaukee, to be used, not to exceed $100 each year, for the promotion of intercollegiate debating in the University. The prizes may be in the form of medals, or in such other form as will, in the judgment of the President of the University and the professor of rhetoric and oratory, best promote excellence in such intercollegiate work.

SOCIETIES AND PUBLICATIONS

LITERARY AND SCIENTIFIC SOCIETIES

The literary or debating societies of the University have played so important a part that they may almost be said to constitute a department by themselves. The Athenæan and the Hesperian societies are nearly as old as the University itself, Athena having been organized in 1850, and Hesperia in 1854. Philomathia was organized in 1886, and Olympia in 1902. These societies are sustained with great enthusiasm, and are an important means of intellectual training. Athena, Hesperia, and Philomathia form what is known as the Joint Debate League, which arranges annually a public debate between two of these three societies. This joint debate has been a feature of the University for nearly forty

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years. These four above-mentioned are men's societies in the College of Letters and Science. The two chief debating societies of the College of Law are the Forum and the Columbia. These six societies form the inter-collegiate debating league, from the members of which inter-collegiate debaters are chosen.

The young women maintain two literary societies, Castalia, established in the early years of the University, and Pythia, in 1902.

The Luther S. Dixon, Andrew A. Bruce, John Marshall, and Edwin E. Bryant law clubs afford valuable practice in the trial of cases. The Short Course Literary Society and the Dairy Course Literary Society in the College of Agriculture offer opportunities for the discussion of questions of special interest to this department. The N. O. Whitney Engineers' Association, the University of Wisconsin Engineers' Club, the J. B. Johnson Engineering Association, and the Civil Engineering Society in the College of Engineering, discuss professional and semi-professional subjects.

The most important scientific organization in the University is the Science Club, which includes both officers of instruction and advanced students, and seeks to promote an interest in scientific study and research. It conducts public meetings for the untechnical discussion of scientific topics of current interest. A bronze medal, executed by T. Moring, London, is annually awarded by the Club for the best baccaulaureate thesis on a scientific subject. The Historical and Political Science Association and the Language and Literature Club are new societies organized by instructors and graduate students for the purpose of fostering advanced work. In various departments of the University there are journal clubs or societies for furthering the special work of the departments. Among these are the *Germanistische Gesellschaft;* a Scandinavian society, the *Nora Samlag;* the Pharmaceutical Society; the Classical Club; the Physics Journal Club; the Biological Club, and the Chemical Club. In other departments, where no such organization has been effected, similar results are reached by means of the various seminaries. The graduate students of the University maintain a Graduate Club. A Music Students' Club has been organized to encourage among the students a more serious study of the great composers and their works. The Haresfoot Club is maintained by University Dramatic talent, and presents a play annually; the Red Domino Club is a similar organization maintained by young women; and

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the Edwin Booth Club aims to promote dramatic interest and train dramatic talent.

SOCIAL AND RELIGIOUS ORGANIZATIONS

The women have organized a Woman's Self Government Association, which seeks to further in every way the unity of spirit of women in the University, to increase their sense of responsibility toward each other, and to be a medium by which the social standard of the University can be made and kept high. The religious organizations of the University include the Young Men's Christian Association, and the Young Women's Christian Association. Honorary fraternities are represented by Phi Beta Kappa, established in 1898, and Tau Beta Pi, the honorary engineering fraternity, established in 1899.

PUBLICATIONS OF THE UNIVERSITY

The University issues five series of publications, giving the results of research in the University, under the general title, *Bulletin of the University of Wisconsin.* These series are (1) Economics and Political Science, (2) History, (3) Philology and Literature, (4) Science, (5) Engineering.

The Washburn Observatory issues the *Publications of the Washburn Observatory*, edited by Professor George C. Comstock.

From the College of Agriculture are issued the *Bulletins of the Experiment Station*, the *Annual Reports*, and the *Bulletin of the Farmers' Institutes.*

A further statement in reference to the above publications is found in the Appendix. Application should be made to E. F. Riley, Secretary of the Regents, for the *Bulletin*, to Professor G. C. Comstock for the publications of the Washburn Observatory, and to Dean W. A. Henry for the publications of the College of Agriculture.

Besides these official publications of investigations the following are edited at the University.

Bulletins of the Wisconsin Geological and Natural History Survey, edited by Professor E. A. Birge, Director.

Transactions of the Wisconsin Academy of Sciences, Arts and Letters, edited by Professor E. B. Skinner, Secretary.

The Pharmaceutical Review, edited by Professor Edward Kremers.

The Municipality, edited by Dr. Samuel E. Sparling.

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Paedagogische Monatshefte, Dr. Edwin C. Roedder, Associate Editor.

The University also issues a general series of the *Bulletin*, which includes the annual Catalogue, special announcements of the Graduate School, the Summer Session, the College of Engineering, the College of Agriculture, the College of Law, the School of Music, the Course in Commerce, the Course in Pharmacy, and of various departments in the College of Letters and Science. These publications are issued during the second semester, and may be had upon application to the Registrar of the University.

The *Directory of Officers and Students* is issued by the University in the early part of the academic year. It gives the University and city address of the officers of instruction and government, and the home and city address and the class of each student.

The General Catalogue of the Officers and Graduates of the University of Wisconsin gives a complete list and classification of the graduates of the University and their present address and occupation, and the terms of service of the regents and members of the instructional force. This catalogue gives also a list of the recipients of honorary degrees, and of higher degrees conferred for work done. It is published once in five years. and may be had, for 10 cents to cover postage, upon application to the Secretary of the Regents. An edition is being prepared during the present year, under the editorship of Mr. Max Loeb.

STUDENT AND ALUMNI PUBLICATIONS

The publications conducted by the students include *The Daily Cardinal;* a bi-weekly illustrated humorous publication, *The Sphinx;* a monthly, *The Wisconsin Literary Magazine;* and an annual, *The Badger*, issued by the Junior Class. The students of the College of Engineering issue a quarterly publication, *The Wisconsin Engineer.* A monthly journal, *The Wisconsin Alumni Magazine*, is issued by the alumni.

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ADMISSION TO THE UNIVERSITY

METHODS OF ADMISSION

Students are admitted either upon examination at the University, or upon certificates from accredited schools, except that students and graduates of the Normal schools of this state, students from other colleges and universities, and adult special students, are admitted in accordance with the provisions stated below.

For the examinations at the University, see Index.

TIME OF ENTRANCE

New students ordinarily enter the University at the opening of the first semester; but there are advantages in beginning work in the Summer Session, not only to the student who needs to strengthen his preparation, but also to the strong student, who through the advantages offered by the Summer Session may complete his University course *in three years.* For the courses, see Index under Summer Session.

In a general way it is, moreover, advantageous to any student to begin work in the Summer Session, for the following reasons: He becomes familiar with University methods of instruction before the heavier work of the year begins; he receives more individual attention, as the classes in summer are smaller; his experience and the advice of his instructor will enable him more wisely to shape his course.

New students may enter at the beginning of the second semester, but they should be on hand the week preceding, in order to make the necessary arrangements, as the regular work of the semester begins promptly on Monday morning.

ENTRANCE REQUIREMENTS

The requirements for admission are stated in terms of units. The term *unit* means the equivalent of five recitations a week for one year in one branch of study. In closely allied branches not usually taught in periods of one year each, such as physiology and zoology, units may be constructed by adding the respective time-values of such studies. In any subject three recitations a week for one year and a half may be counted as one unit.

Fourteen units are required for admission. Students who

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offer fourteen units which do not include two units of foreign language, will be admitted on condition that the language requirements be met before graduation. This will ordinarily require extra work to the extent of four hours a week for one year, which may not be credited as part of the 120 unit-hours required for graduation. This privilege will be extended only to graduates of schools in the State of Wisconsin, and opportunity for making up the deficiency in language will be offered by the University.

No language course of less than two units will be accepted. Not more than four of the required fourteen units will be accepted in any one subject.

The entrance requirements are presented under two general heads: I, studies required of all; II, optional groups.

I. The following units are required of all:

Mathematics,	2 units
English,	2 units
History,	1 unit
Science,	1 unit

II. In addition to the requirements under I, eight units from one of the four following groups must also be offered:

Group A

Latin, 4 units.

Any 4 units from the following:

Greek,	2 units
German,	2 units
French,	2 units
Elective,	2 units

(from groups B, C, and D.)

Group B

Latin, 4 units.

Any 4 units from the following:

English,	1 or 2 units
History,	1, 2, or 3 units
Civics, Economics,	1 unit
Mathematics,	1 unit
Science,	1, 2, or 3 units
Foreign Language,	2 units

Group C

German or French, 4 units.

Any 4 units from the following:

English,	1 or 2 units
History,	1, 2, or 3 units
Civics, Economics,	1 unit
Mathematics,	1 unit
Science,	1, 2, or 3 units
Foreign Language,	2 units

Group D

German or French, 2 units.

Any 6 units from the following:

English,	1 or 2 units
History,	1, 2, or 3 units
Civics, Economics,	1 unit
Mathematics,	1 unit
Science,	1, 2, or 3 units
Latin,	2 or 3 units
French or German,	1, 2, or 3 units

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REQUIREMENTS FOR ADMISSION TO THE SEVERAL COLLEGES AND COURSES OF THE UNIVERSITY

College of Letters and Science. The studies under I, and any one of the groups A, B, C, or D, under II.

College of Engineering. The studies required of all, under I, and any one of the groups A, B, C, or D, under II, except that physics, 1 unit, and an additional half unit of algebra must be included in the studies offered. One unit of approved manual training (including drawing) will be accepted as one of the four or six elective units to be offered. Groups B and C are recommended as giving the most satisfactory preparation, and students are advised to include chemistry and advanced mathematics in the subjects offered. Students who enter conditioned in foreign language will find it difficult to complete any of the courses in engineering in four years.

All students entering the College of Engineering are required to pass an examination in algebra. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the time when they begin their course*, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the examination will not be permitted to enter the regular algebra classes for engineering students until the deficiency is made up.

In the fall of 1906 and thereafter, students entering the College of Enginering will be required to present as part of the fourteen units required, an additional half unit of algebra, covering such ground as is hereinafter indicated.

College of Agriculture. The studies required of all, under I, and either group C or group D, under II.

College of Law. The studies required of all, under I, and any one of the groups A, B, C, or D, under II, and also credits equivalent to the work of the freshman year in the College of Letters and Science.

Course in Commerce. The studies required of all, under I, and any one of the groups A, B, C, or D, under II.

Course in Pharmacy. FOUR YEARS' COURSE. The studies required of all, under I, and any one of the groups A, B, C, or D, under II. No practical experience in pharmacy is required. TWO YEARS' AND THREE YEARS' COURSE: I. Graduates from high schools are admitted without examination and without practical

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experience in a drug store. II. Non-graduates are admitted if they comply with the following requirements:—

1. They must be at least eighteen years of age.
2. They must present satisfactory certificates of at least one year's attendance from some standard high school, or its equivalent from a similar educational institution.
3. The time intervening between the secondary education and the college course should have been spent in a drug store, where physician's prescriptions are regularly compounded.

SCOPE OF THE PREPARATORY WORK

The following description serves to indicate the extent of the preparation expected in each of the several subjects named in the preceding requirements for admission:

English

ENGLISH. 2, 3, or 4 units. The two units in English required of all applicants for admission should be made up of composition and rhetoric, and readings in English classics, as follows:

COMPOSITION AND RHETORIC. All students entering the University will be examined in English composition. This examination will be a simple and practical one, designed to test the student's ability to express himself in clear, correct, idiomatic English. The student will be required to write an essay, or more than one, on a familiar theme, planning his work by paragraphs and constructing both paragraphs and sentences in accordance with the simpler principles of composition. No student will be passed whose work shows serious weakness in spelling, punctuation, grammar, or sentence structure; neatness of manuscript will also be taken into account. Facility of expression will not be considered an offset to serious weakness in spelling, punctuation, or grammar. Students found deficient in English composition who do not make up such deficiency in one year will be dropped from the University.

READING OF CLASSICS. The following lists include (1) a series of books for general reading, which may also be used as a basis for work in English composition; (2) a limited number of masterpieces for thorough study. In addition to the essays called for under the head of Composition and Rhetoric there will be required such further tests as seem suited to secure a careful reading of all the books prescribed in series (1). In the case of the books set for more thorough study, the candidate will be examined on subject-matter, form, and substance, and the examination will be of such a character as to require a thorough study of each of the works named, in order to pass it successfully.

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1. For General Reading and Composition work:—

In 1906, 1907, and 1908: Shakespeare's *Macbeth* and *The Merchant of Venice; The Sir Roger de Coverley Papers* in *The Spectator;* Irving's *Life of Goldsmith;* Coleridge's *Ancient Mariner;* Scott's *Ivanhoe* and *The Lady of the Lake;* Tennyson's *Gareth and Lynette, Lancelot and Elaine,* and *The Passing of Arthur;* Lowell's *Vision of Sir Launfal;* George Eliot's *Silas Marner.*

In 1909, 1910, 1911:

Group I. (two to be selected).

Shakespeare's *As You Like It, Henry V, Julius Caesar, The Merchant of Venice, Twelfth Night.*

Group II. (one to be selected).

Bacon's *Essays;* Bunyan's *The Pilgrim's Progress, Part I; The Sir Roger de Coverley Papers* in *The Spectator;* Franklin's *Autobiography.*

Group III. (one to be selected).

Chaucer's *Prologue;* Spencer's *Faerie Queene,* (selections); Pope's *The Rape of the Lock;* Goldsmith's *The Deserted Village;* Palgrave's *Golden Treasury (First Series), Books II and III,* with especial attention to Dryden, Collins, Gray, Cowper and Burns.

Group IV. (two to be selected).

Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* Scott's *Quentin Durward;* Hawthorne's *The House of the Seven Gables;* Thackeray's *Henry Esmond;* Mrs. Gaskell's *Cranford;* Dickens' *A Tale of Two Cities;* George Eliot's *Silas Marner;* Blackmore's *Lorna Doone.*

Group V. (two to be selected).

Irving's *Sketch Book;* Lamb's *Essays of Elia;* De Quincey's *Joan of Arc* and *The English Mail Coach;* Carlyle's *Heroes and Hero Worship;* Emerson's *Essays* (selected); Ruskin's *Sesame and Lilies.*

Group VI. (two to be selected).

Coleridge's *The Ancient Mariner;* Scott's *The Lady of the Lake;* Byron's *Mazeppa* and *The Prisoner of Chillon;* Palgrave's *Golden Treasury (First Series) Book IV,* with especial attention to Wordsworth, Keats and Shelley; Macaulay's *Lays of Ancient Rome;* Poe's *Poems;* Lowell's *The Vision of Sir Launfal;* Arnold's *Sohrab and Rustum;* Longfellow's *The Courtship of Miles Standish;* Tennyson's *Gareth and Lynette, Lancelot and Elaine,* and *The Passing of Arthur;* Browning's *Cavalier Tunes, The Lost*

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Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, Pheidippides.

2. For thorough study:

In 1906, 1907, and 1908: Shakespeare's *Julius Caesar;* Milton's *L'Allegro, Il Penseroso, Comus,* and *Lycidas;* Burke's *Speech on Conciliation with America;* Macaulay's *Essay on Milton,* and *Life of Johnson.*

In 1909, 1910, 1911: Shakespeare's *Macbeth;* Milton's *Lycidas, Comus, L'Allegro,* and *Il Penseroso;* Burke's *Speech on Conciliation with America,* or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration;* Macaulay's *Life of Johnson,* or Carlyle's *Essay on Burns.*

In addition to these, it is expected that several other English classics will be read each year. The lives and characters of the authors read and the history of their times should be studied to a reasonable extent, but the chief aim should be *intelligent reading.* Particular attention should be given to enlarging the student's knowledge of vocabulary and idiom.

ENGLISH LITERATURE. One or two optional units may be offered in this subject in addition to the two prescribed units, described above. If one unit is offered, the work should include the history of English literature and the reading of representative authors of each period. The second optional unit may consist of additional work in the reading and study of the works of the chief English and American authors.

Mathematics

ALGEBRA. 1 or 1½ units. The unit required of all students should include the following subjects: Addition, substraction, multiplication, division, equations of the first degree with one unknown number, simultaneous equations of the first degree, factors, highest common factor, lowest common multiple, quadratic equations, simultaneous equations above the first degree, theory of indices (positive, negative, fractional, and zero), and radicals.

An additional half-year of algebra is strongly recommended. (This half unit will be required of engineering students in 1906 and thereafter.) The work should cover the following subjects: Simultaneous quadratic equations; ratio, proportion and variation, including graphical representation of simple relations be-

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tween two variables; arithmetical and geometrical progressions; binominal theorem for positive integral exponents; logarithms, including use of tables in simple numerical work.

GEOMETRY. 1 unit. Plane and solid geometry. In solid geometry special attention should be given to the geometry of the sphere.

TRIGONOMETRY. ½ unit. A knowledge of the important properties of the trigonometric functions, the more important formulas which follow from the addition-theorem, and of the solution of the various cases of the plane triangle. Care should be taken to make students familiar with the use of logarithmic and trigonometric tables.

History, Civics, and Economics

HISTORY. 1, 2, 3, or 4 units. The requirements in history may be satisfied by the presentation of any one of the following "blocks":

Ancient History to the year 800 A. D., 1 unit.

Medieval and Modern History, 1 unit.

Medieval and English History, 1 unit.

English History, 1 unit.

United States History, 1 unit.

One, two, or three additional blocks may be presented. A real equivalent may be presented in place of a block recommended above, but a one year's course in general history will not be accepted.

CIVICS. ½ unit. A knowledge of the relationships existing between subordinate and higher political units together with a description of the chief functions performed by the institutions of the various political units.

Civics may be combined with history or economics in the construction of an elective unit.

ECONOMICS. ½ unit. Either (1) a knowledge of the leading facts relating to the rise and growth of modern industry, with special reference to the industrial history of England and the United States; or (2) a knowledge of the fundamental principles of economic science as presented in a good elementary treatise on the subject.

Science

BOTANY. 1 unit. The course in botany should cover a study of the life histories of types from the main groups of plants and

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should include also a series of simple physiological experiments. At least two-thirds of the course should consist of laboratory work. For further details see the report of the committee of the Wisconsin State Teachers' Association for 1902 on a high school course in botany.

Where it is not possible to give a full year's work to the subject botany may be combined with physical geography and physiology in the construction of units.

CHEMISTRY. 1 unit. A year's course of descriptive chemistry, consisting of both class-room and laboratory work. This course should include the more common metals and non-metals and their compounds. Two periods of laboratory work are considered as equivalent to one class exercise. A careful record of laboratory experiments should be kept, which must be submitted for examination by the committee on entrance examinations. Remsen's *Introduction to the Study of Chemistry*, Newell's *Experimental Chemistry*, and Storer and Lindsay's *Elementary Manual of Chemistry*, are suitable text-books among the many published. A laboratory manual should be used with any text.

PHYSICS. 1 unit. A year's course in physics, including continuous and systematic laboratory practice; any one of the standard text-books may be used.

PHYSICAL GEOGRAPHY. 1 unit. The physical geography should include: (1) The principles as presented in the best recent text-books, which give adequate treatment of the atmosphere and ocean and emphasize the development of topographic forms. (2) Field study. The nature of this must be controlled by the locality; but every candidate offering physical geography will be expected to submit a statement of the field trips required in his course. (3) The interpretation and habitual use of topographic maps, weather maps, charts, and pictures.

Where it is not possible to give a full year's work to the subject, physical geography may be combined with botany and physiology in the construction of units.

PHYSIOLOGY. ½ unit. In this subject instruction must be given in the anatomy, histology, and physiology of the human body, and the essentials of hygiene. The amount expected is indicated by that given in Martin's *The Human Body, Briefer Course.* The text-book work must be illustrated by charts and models, and the histology should also be shown by specimens.

ZOOLOGY. 1 unit. Instruction in this subject must include as

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much as four periods of laboratory work per week. The student must dissect at least eight to ten types of animals and make careful descriptions and drawings of this work. The types must be selected from the different branches of the animal kingdom. Knowledge of life histories and habits and relation of environment is also expected. The laboratory work must be accompanied with class exercises, so that the student may gain an intelligent appreciation of the meaning of his observations and of the bearing on zoological science of the facts observed by him. Lectures or text-book work on classification and general zoology must be a part of the course. The nature and scope of work expected may be indicated by the text-books of Needham, Davenport, Jordan, and Kellogg.

Language

GREEK. 2 units. Grammar; Lessons; Xenophon's *Anabasis*, four books; Homer's *Iliad*, three books, or an equivalent amount of the *Odyssey;* Greek composition.

LATIN. 4 units. Grammar and elementary book; *Caesar*, four books, or an equivalent amount of *Nepos*, *Caesar* (at least two books) and selections; *Cicero*, six orations (selections from the letters may be substituted for two orations); *Virgil*, six books; composition; preferably in connection with *Caesar* and *Cicero*.

The statement above covers the 4 units of Latin in groups A and B. The requirements in these groups are planned with reference to the needs of those candidates who purpose to continue in the University the study of ancient and modern languages and of history.

LATIN. 2 units. Grammar and elementary book; *Caesar*, four books or an equivalent amount of *Nepos*, *Caesar* (at least two books) and selections; composition. Two units of Latin will be accepted when presented with two or more units of modern language as specified in groups C and D. Students who so present two units and others whose preparation in Latin is, for any reason, deficient may continue the study in the University with course A, which may be credited towards the bachelor's degree. No such credit, however, will be given for third and fourth year high school Latin.

GERMAN. 2, 3, or 4 units. German may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study and approximately corresponding to the "elementary," "intermediate," and "ad-

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vanced" courses outlined in the "Report of the Committee of Twelve." This report can be procured, at the price of sixteen cents, from D. C. Heath & Co., Boston, and should be in the hands of every secondary teacher of German.

A. Elementary German. 2 units. Applicants should be able to pronounce and to translate at sight (into good idiomatic English) simple German prose, help being given upon unusual words and constructions, to put easy English sentences into German, and to carry on a very simple conversation based upon the texts set for translation. The required amount of grammar is contained in the current "brief" grammars, or in the "first parts" of larger grammars like Joynes-Meissner or Thomas. Of the strong verbs only the more usual are required. Applicants should have read not less than 200 pages of easy German, chiefly modern narrative prose, but including some simple poems and one or two short plays. For suitable texts see the "Report," pp. 63-64.

B. Intermediate German. In addition to the work outlined under A, applicants should have read from 300 to 400 pages of moderately difficult prose and poetry, with constant practice, both oral and written, upon portions of the texts read. Of the latter about one-half should be taken from modern prose and the other half from poetry and the easier plays of Schiller, Goethe, or Lessing. The work in grammar, accompanied by exercises in composition, should include the less usual strong verbs, the principal uses of prepositions, conjunctions, and modal particles, and the essentials of syntax and word formation. For suitable texts see the "Report," p. 71.

C. Advanced German. Besides the work outlined under A and B, applicants should have read from 400 to 500 pages of standard literature in prose and poetry, with reference reading in the history of modern German literature, especially upon the lives and works of the authors studied. They should be able to translate at sight any ordinary modern German text that is free from unusual difficulties, to write a brief German essay on a simple topic relating to the texts read, and to follow a recitation conducted in German, answering in that language questions asked by the instructor. For suitable texts see the "Report," p. 73.

Students without preparation in German enter course 1. Those who have had two years of high school German will begin their work in the University with one of the courses 2, 2M, 2S, 2C, or 2E. Those who have had three years of German enter course 2A.

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Students who have studied German for four years in the high school regularly enter course 3A, unless their particular course of study requires a special class in German, as for example 3S, 3C, or 3E. See Index under German.

FRENCH. 2, 3, or 4 units. French may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study, and approximately corresponding in difficulty to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve," pp. 75-83.

A. Elementary French. 2 units. The applicant should have a thorough knowledge of the grammatical forms of the language, and possess a sufficient vocabulary to read simple texts with ease.

Fraser and Squair's grammar is being used at present in the University, emphasis being placed upon oral and written drill outlined in the first 161 pages. Not less than 600 pages of simple French should have been read with careful attention paid to pronunciation during the entire period. A list of suitable texts will be found on page 76 of the "Report of the Committee of Twelve."

B. Intermediate French. In addition to course A, the applicant should have read at least 600 pages of French chosen from nineteenth century classics, and done work in oral and written composition equivalent to that given in Fraser and Squair's *Complete French Grammar.*

C. Advanced French. One year's high school work in addition to Intermediate French. The applicant should be able to write a short composition in French and show his understanding of a simple lecture in French by answering questions upon it in French. He should also be familiar with the outline of French history and literature.

MANUAL TRAINING. 1 unit. In order to present manual training for entrance, the applicant must have devoted 200 periods to each of the following two divisions of subjects:

(1) Shop Work
- a. Wood work.
- b. Forging.
- c. Chipping, filing, and fitting.
- d. Machine tool work.

(2) Drawing
- e. Freehand drawing.
- f. Mechanical drawing.

(1) The course must include subdivision (a) and at least

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one of the subdivisions (b), (c), or (d). A note book containing a description and sketches of the work done is required.

(2) The course must include freehand and mechanical drawing. (e) Freehand and drawings of simple objects—with and with out shading. (f) In mechanical drawing the plates must be well executed and the problems include projections of geometrical solids and working drawings of simple machine parts.

EXAMINATIONS AT THE UNIVERSITY

The regular examinations of the University are two in number, one in June and one in September. The earlier one is intended for those who wish to be examined while fresh from their preparatory studies, and for those who wish to test their qualifications at an early date in order that they may have time to make up deficiencies if necessary. The September examination immediately precedes the opening of the first semester.

For the current year the earlier examinations will be held on Thursday and Friday, June 14 and 15, beginning at 9 o'clock A. M. The later examinations will be held on Tuesday and Wednesday, September 25 and 26, beginning at 9 o'clock A. M. Students who are in any doubt as to their qualifications are urged to present themselves in June. All candidates are required to be present at 9 o'clock on the first day of the examinations.

Candidates for admission to the University may divide the subjects and take the examinations in two trials; but a failure to pass all of the subjects in the two trials will necessitate a complete re-examination.

The character of the entrance examinations is indicated by the extent of the preparation expected in each of the several branches, as described above under the heading Scope of the Preparatory Work.

ADMISSION UPON CERTIFICATE

ACCREDITED SCHOOLS.—Any high school or academy whose course of instruction covers the branches requisite for admission to the University may be admitted to its accredited list of preparatory schools after a satisfactory examination by a committee of the Faculty. Application for such an examination may be made by an officer of the school to the President of the University, on the basis of which a committee of the Faculty will examine the course of study and the methods of instruction in the school,

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and on their favorable recommendation and the concurrence of the Faculty it will be entered upon the accredited list of the University. No school will be placed upon the list whose course of study is not fully equal to the four-year course of high schools recommended by the State Superintendent. The graduates of such an approval school will be received by the University without examination, on the presentation of a certificate showing the satisfactory completion of the 14 required units, and containing the recommendation of the principal. Forms for such certificates, prepared by the University, must be used, and may be obtained from the Registrar. These certificates should be sent to the University before August 1st.

Principals of accredited schools are requested to note the statement regarding the examination of freshmen in English, as stated under the heading Scope of the Preparatory Work (see Index), and also the statement regarding the additional requirement and examination in algebra for admission to the College of Engineering, as stated under Requirements for Admission (see Index).

The University desires to keep itself fully informed regarding the work of its accredited schools by means of annual reports and frequent inspections. Every accredited school is required to report each year concerning its teachers, course of study, methods of instruction, and material equipment. Blank forms are furnished by the University for this purpose. The University sends out inspectors at its own expense and at the convenience of the members of the staff. Especial attention is called to the necessity of promptly notifying the Secretary of the Committee on Accredited Schools of changes in the dates of examinations and vacations. The list of accredited schools will be found at the end of this section.

GRADUATES OF NORMAL SCHOOLS

The certified standing of any student in the regular courses of the Normal schools of this state will be accepted for entrance to the University in place of an examination in the subjects covered by the certificate.

The University offers a course designed especially for Normal school graduates leading to the degree of Bachelor of Philosophy. This course includes advanced instruction in education and those studies in history, languages, and science, both required and elective, which will best fit the student for the successful conduct of his chosen profession. To this course graduates of the advanced

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courses of the Wisconsin Normal schools will be admitted with the rank of junior on the presentation of their diplomas.

Graduates of the Normal schools of the State who desire to become candidates for the degree of Bachelor of Arts will be given credits towards that degree as follows:—

a. All graduates of the advanced courses in a Wisconsin Normal school shall receive a credit of 30 unit hours, provided, that before entering the advanced course of the Normal school, they have had the full equivalent of a four-year standard high school course.

b. A graduate of the advanced course who, before entering a Normal school, has completed the full equivalent of the preparatory course in an accredited high school, including at least the minimum requirement in foreign langnage (see Index under Entrance Requirements), shall be granted a credit of 36 hours.

c. A graduate who has had the preparatory work specified in *b*, and who, during his course at the Normal school, has selected his studies with special reference to attending the University, may, on application, secure additional credits to an amount not exceeding a total of 45 hours.

d. A student who applies for such additional credit must present a full statement of his work at the Normal school, which will be examined and rated by the Committee on Advanced Standing. The studies presented for a credit under this agreement must be fully equivalent to the corresponding courses in the University. Credit beyond 36 hours will ordinarily be granted only to students who present college work in foreign languages. Application for laboratory credit in science must be accompanied by laboratory or field books. No credit will be given for any work in the Normal school done in a quarter when more than 20 hours per week were taken, except on special recommendation of the president of the school.

Graduates of the Normal schools of other states are admitted to the University under the same general conditions as obtain for graduates of the Wisconsin Normal schools, except that no credit will be given greater in amount than that granted by the state university of that state to the school in question.

STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES

Students from other institutions, who have pursued standard college courses equivalent to those of the University, will be ad-

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mitted, and will receive credit for such courses upon the presentation of proper certificates of creditable standing and honorable dismissal.

By arrangement with Lawrence University and Ripon College, students of these institutions who have satisfactorily completed the work of the sophomore year will be admitted to junior rank in the College of Letters and Science. In case of migration at an earlier period than the end of the sophomore year, proportional credit will be given. Students who complete two years of work at Lawrence and Ripon will be admitted to the College of Engineering of the University of Wisconsin on the same conditions as students who transfer to that college from the College of Letters and Science of the University of Wisconsin. Students of senior rank from Lawrence and Ripon who enter the College of Law will receive credit for their law studies toward graduation in the institution from which they come, to amounts to be determined by those institutions.

Students of other colleges of good standing who have not taken standard courses, but who have studied at least one year in the college proper, may be admitted to the University provisionally. In such cases the amount of credit will be determined by the Committee on Advanced Standing. The University reserves the right to test by examination the records presented.

No person will be admitted to the University later than November 1st of the year in which he expects to graduate.

ADMISSION OF ADULT SPECIAL STUDENTS

Persons twenty-one years of age who do not possess all the requirements for admission, and are not candidates for a degree, but wish to take special studies in the College of Letters and Science and the College of Agriculture, are permitted to do so upon giving satisfactory evidence that they are prepared to take the desired studies advantageously. This privilege is granted in the College of Engineering only to such students as are able to meet all of the entrance requirements in mathematics. The privilege is not granted in the College of Law.

Adult special students who desire subsequently to become candidates for a degree must satisfy the regular entrance requirements.

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ACCREDITED SCHOOLS

THE UNIVERSITY LIST

The accredited schools are arranged in groups in accordance with the grouping of the admission requirements.

Group A

School	*Principal*
Aberdeen, So. Dak.,	R. L. KIRK.
Antigo,	W. H. HICKOK.
Appleton,	R. W. PRINGLE.
Ashland,	E. F. MEYER.
Aurora, Ill.: East,	C. L. PHELPS.
Aurora, Ill.: West,	C. P. BRIGGS.
Baraboo,	G. W. GEHRAND.
Bayfield,	E. C. GOTHAM.
Beaver Dam,	H. B. HUBBELL.
Beaver Dam: Wayland Academy,	E. P. BROWN.
Beloit,	F. E. CONVERSE.
Belvidere, Ill.: North,	FLORA FELLOWS.
Belvidere, Ill.: South,	MYRTLE L. STRICKLER.
Berlin,	E. T. O'BRIEN.
Bessemer, Mich.,	AMELIA F. OLCOTT.
Black River Falls,	R. S. CRAWFORD.
Boone, Ia.,	M. M. BEDDALL.
Boscobel,	M. C. PALMER.
Brodhead,	F. A. HARRISON.
Burlington,	W. H. JAMIESON.
Butte, Mont.,	H. M. HART.
Calumet, Mich.,	E. J. HALL.
Charleston, Ill.,	DEWITT ELWOOD.
Cherokee, Ia.,	A. V. STORM.
Chicago, Ill., High Schools:	
Austin,	G. H. ROCKWOOD.
Calumet,	A. S. HALL.
Englewood,	J. E. ARMSTRONG.
Hyde Park,	H. B. LOOMIS.
Jefferson,	C. A. COOK.
Lake,	E. F. STEARNS.
Lake View,	B. F. BUCK.
Marshall,	L. J. BLOCK.
McKinley,	G. M. CLAYBERG.

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School	*Principal*
Medill,	E. C. Rosseter.
North-West Division,	E. P. Fisk.
South Chicago,	C. I. Parker.
Wendell Phillips,	S. R. Smith.
Waller,	O. S. Westcott.
Chicago, Ill.: Harvard School,	J. J. Schobinger. J C. Grant.
Chicago, Ill.: The University High School,	H. H. Belfield. W. B. Owen.
Chicago, Ill.: Kenwood Institute,	Stella Dyer Loring. Isabel C. Buckingham.
Chicago, Ill.: University School,	E. C. Coulter.
Chippewa Falls,	E. D. Martin.
Clinton,	F. J. Lowth.
Clinton, Ia.,	J. S. McCowan.
Colorado Springs, Colo.,	J. R. Richards.
Columbus,	F. Thomson.
Council Bluffs, Ia.,	S. L. Thomas.
Culver, Ind.: Culver Military Academy,	A. F. Fleet.
Cumberland,	R. W. Whitford.
Darlington,	R. E. Loveland.
Davenport, Ia.,	W. D. Wells.
Decorah, Ia.,	H. C. Johnson.
De Forest: Windsor Township,	E. C. Meland.
De Kalb, Ill.,	F. M. Giles.
Delafield: St. John's Military Academy,	S. T. Smythe.
Delavan,	I. B. Davies.
Denver, Colo.: District No. 1,	W. H. Smiley.
De Pere,	J. W. Steenis.
Dillon, Mont.: Beaverhead County,	L. R. Foote.
Dixon, Ill.,	A. N. DeLong.
Dixon, Ill.: North,	H. V. Baldwin.
Dodgeville,	C. G. Babcock.
Dubuque, Ia.,	F. L. Smart.
Duluth, Minn.,	C. A. Smith.
Eau Claire,	M. S. Frawley.
Edgerton,	E. L. Roethe.
Elgin, Ill.,	W. L. Goble.
Elkhorn,	T. J. Jones.
Ellsworth,	H. A. Schofield.

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School	*Principal*
Elroy,	W. S. HAKE.
Escanaba, Mich.,	ALICE J. HOULE.
Evanston, Ill.; Evanston Township,	W. F. BEARDSLEY.
Evansville,	A. H. SHOLTZ.
Evansville Seminary,	C. M. SANFORD.
Evansville, Ind.,	J. G. COLLICOTT.
Fargo, N. D.,	BLANCHE G. LOVERIDGE.
Fairbault, Minn.: Shattuck School,	JAMES DOBBIN.
Fond du Lac,	ELIZABETH A. WATERS.
Fond du Lac: Grafton Hall,	B. TALBOT ROGERS.
Fort Atkinson,	J. A. HAGEMANN.
Fort Dodge, Ia.,	S. THOMAS.
Freeport, Ill.,	L. A. FULWIDER.
Galena, Ill.,	P. H. CLARK.
Grand Rapids,	H. S. YOUKER.
Green Bay: East,	W. O. BROWN.
Green Bay: West,	H. HENDRICKSON.
Hancock, Mich.,	M. J. WALSH.
Harvard, Ill.,	R. G. JONES.
Harvey, Ill.: Thornton Township,	J. E. CABLE.
Highland Park, Ill.,	R. L. SANDWICK.
Highland Park, Ill.: Northwestern Military Academy,	H. P. DAVIDSON.
Hillside Home School,	ELLEN C. LLOYD-JONES JANE LLOYD-JONES.
Hinsdale, Ill.,	O. S. THOMPSON.
Houghton, Mich.,	J. A. DOELLE.
Hudson,	D. L. HENNESSEY.
Indianapolis, Ind.: Shortridge,	G. W. BENTON.
Indianapolis, Ind.: Manual Training,	C. E. EMMERICH.
Iron Mountain, Mich.,	J. F. REED.
Ironwood, Mich.,	J. V. BRENNAN.
Ishpeming, Mich.,	MAY MCKITRICK.
Janesville,	H. C. BUELL.
Jefferson,	M. M. MUENICH.
Joliet, Ill.,	J. S. BROWN
Kankakee, Ill.,	I. M. ALLEN.
Kaukauna,	L. E. SARGENT.
Kenilworth, Ill.: New Trier Township,	B. D. PARKER.
Kenosha,	W. J. HOCKING.

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School	*Principal*
Keokuk, Ia.,	J. BENJAMIN.
Kewanee, Ill.,	A. D. BROOKFIELD.
Kokoma, Ind.,	J. Z. A. MCCAUGHAN.
La Crosse,	W. R. HEMMENWAY.
La Grange, Ill.: Lyons Township,	E. R. COLE.
Lake Forest, Ill.: Lake Forest School for Boys,	J. C. SLOANE.
Lake Geneva,	H. M. SNOW.
Lancaster,	C. E. SLOTHOWER.
Lodi,	S. M. W. THOMAS.
McGregor, Ia.,	B. DIMMITT.
Macon, Mo.: Blees Military Academy,	F. W. V. BLEES.
Madison,	J. H. HUTCHINSON.
Madison: Wisconsin Academy,	CHARLOTTE E. RICHMOND.
Manitowoc: North,	P. G. W. KELLER.
Manitowoc: South,	W. H. LUEHR.
Marinette,	C. E. LONG.
Marquette, Mich.,	MARY R. POWERS.
Marshalltown, Ia.,	E. V. BRUMBAUGH.
Marshfield,	D. C. GILE.
Mason City, Ia.,	ESTHER L. BISSELL.
Mauston,	W. E. GREEN.
Mazomanie,	F. G. KRAEGE.
Medford,	H. F. ARNEMANN.
Menasha,	JOHN CALLAHAN.
Mendota, Ill.: Blackstone,	MYRA J. HOWES.
Menominee, Mich.,	W. L. GERMAN.
Menomonie,	G. A. WORKS.
Merrill,	G. J. ROBERTS.
Milton Junction,	R. S. GOODHUE.
Mineral Point,	J. F. BERGEN.
Milwaukee: East Division,	G. A. CHAMBERLAIN.
Milwaukee: South Division,	E. RISSMAN.
Milwaukee: West Division,	C. E. MCLENEGAN.
Milwaukee Academy,	J. H. PRATT, JR.
Milwaukee-Downer Col., Seminary Dept.,	ELLEN C. SABIN.
Milwaukee: Marquette Academy,	A. J. BURROWES.
Moline, Ill.,	E. P. NUTTING.
Mondovi,	W. S. FREEMAN.

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School	*Principal*
Monroe,	G. W. SWARTZ.
Morgan Park, Ill.: Morgan Park Academy,	WAYLAND CHASE.
Necedah,	L. W. BROOKS.
Neenah,	E. M. BEEMAN.
Neillsville,	A. A. KIENHOLZ.
New Lisbon,	A. R. CLIFTON.
New London,	W. J. HAMILTON.
New Richmond,	C. J. BREWER.
Oak Park, Ill.,	J. C. HANNA.
Oconomowoc,	P. A. KOLB.
Oconto,	B. F. COEN.
Omro,	E. E. SHELDON.
Orchard Lake, Mich.: Michigan Military Academy,	L. C. HULL.
Oregon, Ill.,	F. G. TAYLOR.
Oshkosh,	A. B. O'NEIL.
Plymouth,	W. B. COLLINS.
Portage,	W. G. CLOUGH.
Poynette,	J. F. POWERS.
Prairie du Chien,	W. E. UTENDORFER.
Prairie du Sac,	JOHN DIXON.
Quincy, Ill.,	V. K. FROULA.
Racine,	E. W. BLACKHURST.
Racine College: Grammar School,	H. D. ROBINSON.
Reedsburg,	J. B. BALDWIN.
Rensselaer, Ind.,	I. N. WARREN.
Rhinelander,	F. A. LOWELL.
Richland Center,	G. E. PRATT.
Ripon,	E. L. LUTHER.
River Falls,	J. W. T. AMES.
Riverside, Ill.,	E. L. HARDY.
Rockford, Ill.,	E. U. GRAFF.
Rock Island, Ill.,	H. E. BROWN.
Salt Lake City, Utah,	G. A. EATON.
Sandwich, Ill.,	W. W. WOODBURY.
Sharon,	J. H. STAUFF.
Shawano,	J. LEIDENBERG.
Sheboygan,	A. D. TARNUTZER.
Shullsburg,	H. MURLEY.
Sinsinawa: St. Clara Academy,	DOMINICAN SISTERS.

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School	*Principal*
Sioux City, Ia.,	G. E. MARSHALL.
Sioux Falls, So. Dak.,	A. A. MCDONALD.
South Bend, Ind.,	I. E. NEFF.
South Milwaukee,	P. BERGEN.
Sparta,	F. M. JACK.
Spokane, Washington,	D. E. CLOYD.
Sterling, Ill.: Sterling and Coloma Township,	E. T. AUSTIN.
Stevens Point,	F. F. SHOWERS.
Stoughton,	A. W. WEBER.
Sturgeon Bay,	C. G. STANGEL.
Superior: Blaine,	S. A. LYNCH.
Superior: Nelson Dewey,	A. C. SHONG.
Tomah,	C. H. MAXSON.
Topeka, Kans.,	H. L. MILLER.
Union Grove,	F. W. DUNBAR.
Viroqua,	W. P. COLBURN.
Washburn,	S. A. OSCAR.
Watertown,	W. P. ROSEMAN.
Waukesha,	B. B. JAMES.
Waukesha: Carroll College Academy,	W. O. CARRIER.
Waupaca,	G. O. BANTING.
Waupun,	G. F. LOOMIS.
Wausau,	C. C. PARLIN.
Wauwatosa,	T. R. LLOYD-JONES,
Webster City, Ia.,	L. H. FORD.
West De Pere,	B. S. HALE.
West Salem,	C. H. DIETZ.
Whitewater,	C. W. RITTENBURG.
Winona, Minn.,	W. A. BARTLETT.
Yankton, So. Dak.,	R. C. SHELLENBARGER.
Group B	
Hurley,	E. T. ARMSTRONG.
Morrison, Ill.,	E. ALBERTA CLARK.
Group C	
Mayville,	L. S. KEELEY.
Group D	
Algoma,	B. O. DODGE.

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School	*Principal*
Arcadia,	W. H. KIEKHOEFER.
Argyle,	W. G. MASE.
Augusta,	J. E. HALE.
Bangor,	J. J. NEUMAN.
Barron,	F. H. SWENSON.
Brandon,	G. A. BENEDICT.
Cedarburg,	E. O. HOLTY.
Chicago, Ill.: Crane Manual Training,	A. R. ROBINSON.
Chilton,	G. M. MORRISSEY.
Chippewa Falls: Notre Dame School,	SISTERS OF NOTRE DAME.
Clintonville,	W. E. SWITZER.
Colby,	D. A. SWARTZ.
Deerfield,	O. S. RICE.
Durand,	H. G. PARKINSON.
Eagle River,	W. D. FULLER.
East Troy,	J. WINDEN.
Fennimore,	H. W. KIRCHER.
Florence,	W. T. DARLING.
Fox Lake,	W. B. ROBERTSON.
Galesville,	H. C. ALMY.
Gladstone, Mich.,	J. H. MCDONALD.
Glenwood,	E. A. KETCHAM.
Hartford,	W. E. ELMER.
Highland,	H. C. HACKER.
Horicon,	F. W. HEIN.
Juneau,	O. H. BAUER.
Kewaunee,	M. MCMAHON.
Lake Mills,	A. B. WEST.
Louisville, Ky.: Manual Training,	E. P. CHAPIN.
Marshall,	W. C. HARRISON.
Montfort,	MILTON ORCHARD.
Negaunee, Mich.,	A. F. STROME.
Onalaska,	J. H. JORDON.
Oregon,	FRANKLIN GOULD.
Phillips,	L. A. JONES.
Plainfield,	WM. MILNE.
Port Washington,	A. A. BLANDIN.
Prescott,	J. GOLDSWORTHY.
Rice Lake,	H. A. SNOWDON.
Sauk City,	R. A. BRANDT.

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School	*Principal*
Seymour,	F. W. AXLEY.
Sheboygan Falls,	A. C. KINGSFORD.
Shell Lake,	J. L. GRINDELL.
Spring Green,	C. N. HILL.
Sun Prairie,	R. J. EDDY.
Tomahawk,	O. E. RICE.
Two Rivers,	S. E. PEARSON.
Waterloo,	K. L. HATCH.
West Bend,	D. E. MCLANE.
Weyauwega,	S. A. STIVERS.
Wonewoc,	A. L. RHODES.

THE NORTH CENTRAL ASSOCIATION LIST

Graduates of schools accredited by the North Central Association of Colleges and Secondary Schools, and not in the University list of accredited schools, will be admitted upon the same terms as graduates of schools directly accredited by the University.

This list is revised annually, in April. Graduates of schools that are added after the publication of this catalogue, will have the same privileges as graduates of the schools given in the list below.

The following schools constitute the list by states:

COLORADO: Canon City; Cripple Creek; Denver, West Side; Durango; Ft. Collins; Golden; Grand Junction; Greely; La Junta; Leadville; Pueblo, Central; Pueblo, District No. 1; Trinidad; Victor.

ILLINOIS: Aurora (East); Aurora (West); Bloomington; Chicago:—Austin, Calumet, Englewood, Hyde Park, Jefferson, John Marshall, Joseph Medill, Lake, Lake View, North West Division, Richard T. Crane Manual Training, Robert A. Waller, South Chicago, Wendell Phillips, William McKinley; Decatur; De Kalb Tp.; Dixon; Elgin; Evanston Tp.; J. Sterling Morton Tp.; Joliet Tp.; La Salle and Peru Tp.; Lyons Tp. (La Grange); Moline; Oak Park Tp.; Ottawa Tp.; Peoria; Pontiac Tp.; Princeton; Rockford; Rock Island; Sterling Tp.; Thornton Tp. (Harvey).

INDIANA: Elkhart City; Fort Wayne; Howe Military School; La Porte; Michigan City; Richmond; South Bend; Shortridge, and Manual Training, Indianapolis.

IOWA: Boone; Burlington; Capital Park; Cedar Rapids; Charles City; Clinton; Corning; Council Bluffs; Davenport; Des

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Moines, East, North, West; Fort Dodge; Grinnell; Iowa City, Le Mars; Mason City; Muscatine; Ottumwa; Sheldon; Sioux City.

MICHIGAN: Albion; Ann Arbor; Alpena; Adrian; Benton Harbor Collegiate Institute; Battle Creek; Bay City; Charlotte; Bessemer; Calumet; Coldwater; Detroit:-Western, Eastern, Central, Home and Day, Detroit University; Delray; Escanaba; Ferris Institute; Flint; Grand Rapids Central; Hancock; Ionia; Ishpeming; Iron Mountain; Jackson; Kalamazoo; Lansing; Lake Linden; Marshall; Ludington; Manistee; Menominee; Michigan Seminary (Kalamazoo); Muskegon; Michigan Military Academy (Orchard Lake); Mt. Clemens; Marquette; Negaunee; Port Huron; Niles; Pontiac; Petoskey; Sault Ste. Marie; Saginaw:—West Side, East Side; St. Joseph; Traverse City; West Bay City; Ypsilanti.

MINNESOTA: Duluth; Minneapolis, Central, East Side, North Side, South Side; Redwing; St. Paul, Central, Cleveland, Humboldt; Winona.

MISSOURI: Columbia; Kansas City Central; Kansas City Manual Training; Trenton; St. Louis McKinley; St. Louis Central.

OHIO: Akron; Ashtabula; Bellefontaine; Cincinnati: Hughes, Walnut Hills, Woodward; Cleveland: Central, East, Lincoln, South, West; Columbus: East, North, South; Coshocton; Delaware; East Cleveland; East Liverpool; Elyria; Fostoria; Glenville; Greenville; Lakewood; Lancaster; Mansfield; Marion; Middletown; Mount Vernon; Newark; Piqua; Portsmouth; Salem; Sandusky; Toledo; Troy; Van Wert; Warren; Wooster; Xenia; Youngstown; Zanesville.

SOUTH DAKOTA: Yankton.

WISCONSIN: Appleton; Ashland; Baraboo; Wayland Academy at Beaver Dam; Beloit; Berlin; Chippewa Falls; Eau Claire; Fond du Lac; Grand Rapids; Janesville; La Crosse; Madison; Marinette; Marshfield; Menomonie; Milwaukee: East Division, West Division, South Division, Milwaukee-Downer Seminary; New Richmond; Oshkosh; Portage; Racine; Ripon; Sheboygan; Sparta; Stevens Point; Superior, Blaine, Dewey; Waukesha; Wausau; Whitewater.

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FEES AND EXPENSES

GENERAL REQUIREMENTS

All fees must be paid at the beginning of each semester, except in the College of Law, where they must be paid for the year at the beginning of the first semester. Until this has been done, cards entitling the student to admission to classes will not be issued.

Graduate students pay the same fees as undergraduates of the College of Letters and Science, whether they are in attendance at the the University or are studying *in absentia;* but all fellows and graduate scholars are exempt from the non-resident tuition fee, and honorary fellows and honorary scholars are exempt from both the non-resident and incidental fees. Graduate students *in absentia* pay the same fees as resident students, provided that after such students have paid fees to the amount they would naturally pay, if residents, for the degree for which they are candidates, no further fees will be required. Members of the instructional force who are candidates for higher degrees, pay the same fees as graduate students; but the total fees required are limited to the aggregate sum which is required of students giving their entire time during the period ordinarily required to obtain the degree sought.

All male students of the University are required to pay a gymnasium fee of one dollar per semester, except Short and Dairy Course students in Agriculture, who pay seventy-five cents for the year. Students in the College of Law pay a gymnasium fee of $2 for the year at the beginning of the first semester.

Tuition is free for all students from the State of Wisconsin, except in the College of Law. The liability of students to pay tuition charges, as distinguished from incidental fees, shall be determined by the Secretary of the Regents.

An additional fee of one dollar per semester must be paid by students who pay their fees after the prescribed registration days. (See Calendar.)

From students entering after one-half of a semester or term shall have elapsed, only one-half of the prescribed tuition and fees shall be collected.

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Upon the recommendation of the Commandant of the department of Military Science, the Secretary of the Regents is authorized to remit fees to the extent of $10 per semester to company officers of the battalion having the rank of captain or above, and to award a prize of $50 at the end of each year of service of the field officers, colonel, lieutenant colonel, and adjutant.

TUITION AND FEES

College of Letters and Science

Resident tuition	FREE.
Non-resident tuition, per semester	$15 00
Incidental fee for all students, per semester	10 00
Gymnasium fee for all men students, per semester	1 00
Additional fee for students electing studies in the College of Law, per semester hour	3 00

College of Engineering and Course in Pharmacy

Resident tuition	FREE.
Non-resident tuition, per semester	$20 00
Incidental fee for all students, per semester	15 00
Summer vacation work	7 00
Gymnasium fee for all men students, per semester	1 00

College of Agriculture

Resident tuition	FREE.
Long Course, non-resident tuition, per semester	$15 00
Incidental fee for all Long Course students, per semester	10 00
Incidental fee for all Short and Dairy Course students, per term	5 00
Tuition fee for non-resident Short and Dairy Course students, per term	15 00
Lecture fee for non-resident Short and Dairy Course students, per term	10 00
Gymnasium fee for Long Course students, per semester	1 00

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Gymnasium fee for Short and Dairy Course students, per semester	75
Farmers' Course, resident tuition	FREE.
Farmers' Course, non-resident tuition	$5 00
Farmers' Course, non-resident incidental fee	5 00

College of Law

Tuition fee, first year	$ 75 00
Tuition fee, second year	50 00
Tuition fee, third year	25 00
Gymnasium fee, per year	2 00
Graduate fees	50 00
Tuition fee for students graduating in one year.	100 00

The fees for students graduating in two years are the same as for the first two years of the three-year course.

The fee for a single semester of any year is sixty per cent. of the entire fee for that year.

The fee for students in other colleges of the University who elect law studies is $3 per semester hour, but the additional fee for students in the College of Letters and Science taking seven hours in the College of Law is $25 for the year.

There is no additional fee for non-resident students in this college.

Summer Session of the College of Letters and Science, and Summer Session for Apprentices and Artisans

General fee	$15 00

Summer School of Library Science

Resident tuition	FREE.
Non-resident tuition	$20 00

School of Music

Persons who are members of other colleges of the University may take the general courses in music without charge. Members of the School of Music and other departments, who take special lessons, will pay fees as stated in the announcement of the school on a subsequent page of this catalogue.

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REGULATIONS FOR DOCTOR'S THESIS

Each candidate for the degree of Doctor of Philosophy must deposit in the University library one hundred printed copies of his thesis. If the thesis is printed in a journal or as a bulletin of the University, reprints therefrom will be accepted by the library, but these must be provided with a special cover in proper thesis form. The candidate may receive his diploma before the thesis is printed, provided a written or typewritten copy of the thesis is deposited with the Librarian, and the sum of $50 with the Secretary of the Regents. The money will be returned on presentation to the library of the required number of printed copies of the thesis.

LABORATORY FEES

BIOLOGICAL LABORATORIES.—The laboratory fee for the elementary course in biology and for the other five-fifths courses is $8 per year, or $4 per semester. The fee for comparative anatomy is $5 a semester; for histology and embryology $10 a semester. The fees for human anatomy are: osteology, $2; dissection, $10 per part dissected. There is also a breakage fee of $2.50 a semester. The fee for bacteriology is $1.50 for each unit hour of credit.

CHEMICAL LABORATORIES.—In these laboratories the deposit is from $15 to $25, depending upon the amount of work taken. The amount refunded will depend on the chemicals used and the care exercised by the student.

GEOLOGY AND MINERALOGY.—Blowpipe analysis, per semester, $6; blowpipe analysis, two-fifths study, $4; three-fifths study, $6; petrography, per semester, $6.

PHYSICAL LABORATORIES.—The laboratory fee in the physical laboratories is $2 for each unit-hour (two hours per week of actual work) per semester.

PSYCHOLOGICAL LABORATORY.—The laboratory fee for the course in experimental psychology is $3; for other experimental work $3 per semester, or $5 per year.

COLLEGE OF MECHANICS AND ENGINEERING.—The charge for laboratory work is $2 per unit-hour (two hours per week of actual work) per semester. There is also a charge of $1 per year for periodicals, supplied to the engineering reading room.

COURSE IN PHARMACY.—See Chemical and Biological laboratories.

COLLEGE OF AGRICULTURE.—The fees required of graduate and long course students in the several laboratories are: Chemistry,

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$1 per unit-hour per semester, with a minimum refundable breakage deposit of $2.50; bacteriology, $1.50 per unit-hour per semester, with a refundable breakage deposit of $2.50; dairy, $1 per unit-hour per semester, with a refundable breakage deposit of $2.50; agricultural engineering, 50 cents per unit-hour per semester, with a minimum refundable breakage deposit of $2.50; soils and horticulture, each $1 per unit-hour per semester. Resident short course students pay a laboratory fee of $2. Non-resident short course students pay a laboratory fee of $12. All short course students in the winter dairy course pay a laboratory fee of $10, and in the summer course $5. Non-residents in the winter dairy course pay a laboratory fee of $20, and in the summer course $15. All dairy course students pay a refundable key and breakage deposit of $2.

GYMNASIUM PRACTICE AND MILITARY DRILL

Young men in the College of Letters and Science, College of Mechanics and Engineering, and the four-year courses in agriculture and pharmacy, are required to take gymnastic exercises during the first two years of their course, and are also required to take military drill. Students required to drill must provide themselves with a uniform, of color and pattern required by the Regents, the cost of which is about $15.

Gymnasium fee, per semester.....$1 00
Locker fee, per year..... 1 50

Young women are required to take gymnastic exercises during the first two years of their course. A gymnasium fee of $1 per year is required, and $1 additional from those who make use of a locker. They must also provide themselves with a suitable costume, directions for which will be found on a subsequent page under the head of Physical Training. (See Index.)

CHADBOURNE HALL

The price of rooms in Chadbourne Hall varies from $50 to $120 a year, according to location. A circular giving detailed information may be obtained by addressing the Secretary of the Regents.

Application for rooms in the Hall may be made at any time to the Secretary of the Regents, and must always be accompanied by a deposit of $10.

For the college year 1906-07 applications for rooms at Chadbourne Hall will be received only from freshmen, sophomores, and juniors up to August 1, 1906, after which date applications

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from seniors may be received. For the college year 1907-08 applications will be received only from freshmen and sophomores until August 1st, 1907, after which applications from juniors and seniors will be received up to the capacity of the Hall.

Rooms are assigned after August 1st by the Mistress of the Hall in the order of application. The deposit of $10 required from all students, new as well as old, when making application, will be credited on the rent of the room, if taken, but if not taken it will be forfeited, unless notification is received by the Secretary of the Regents prior to August 1st. The balance due for rent must be paid to the Secretary, not later than the second week after the beginning of each semester.

If for any reason one of the occupants of a suite shall be obliged to give up her place in the suite, the remaining person may be required to take a single room, if one is vacant, or pay the price for the full suite during the time it is occupied by her alone.

A person entering the Hall for the second semester only shall pay the price of the room charged for the second semester, with the additional sum of $10.

The rooms of Chadbourne Hall are carpeted and furnished, but occupants are expected to provide washstand furniture, towels, napkin rings, sheets, pillow cases, counterpanes, and blankets.

At present the cost of board at Chadbourne Hall is $3.50 a week for a semester. For shorter periods the rate is $4 a week. Any exception to this rule will be entirely voluntary with the matron in charge.

Chadbourne Hall has accommodations for one hundred women students. It is lighted by electricity, and the heating apparatus is connected with the central heating plant, so that the danger from fire is minimized. Elevators operated by electricity connect the several floors.

The young women that occupy this building are under the immediate charge of the Mistress of the Hall; they must board in the Hall, and are expected cheerfully to conform to the requirements necessary for a family of students.

An account of the women's gymnasium in Chadbourne Hall may be found under the heading Physical Training. (See Index.)

ROOMS AND BOARD

Rooms, furnished and unfurnished, can be obtained in the city at prices per week ranging from $1 to $4 a person. The cost of

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board in clubs is from $2.50 to $3 a week; in private families from $3 to $4 a week. Many students obtain rooms or board in families or clubs by rendering service; but these places are eagerly sought for, and cannot always be obtained at once. Those dependent upon themselves for support should not come to the University unless they have a reasonable reserve fund.

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DEGREES

FIRST DEGREES

The following baccalaureate degrees are conferred upon those who have successfully completed the prescribed courses of study, and who have complied with all other requirements of the University:—

Academic

BACHELOR OF ARTS, upon the graduates in the College of Letters and Science, except those from the course for Normal school graduates, and from the course in Pharmacy.

BACHELOR OF PHILOSOPHY, upon the graduates from the course for Normal school graduates.

Professional and Technical

BACHELOR OF LAWS.

BACHELOR OF SCIENCE IN AGRICULTURE.

BACHELOR OF SCIENCE, CIVIL ENGINEERING COURSE.

BACHELOR OF SCIENCE, SANITARY ENGINEERING COURSE.

BACHELOR OF SCIENCE, MECHANICAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, GENERAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, APPLIED ELECTROCHEMISTRY COURSE.

BACHELOR OF SCIENCE, PHARMACY COURSE, upon graduates from the four-year course in Pharmacy.

GRADUATE IN PHARMACY, upon graduates from the two-year course in Pharmacy.

GRADUATE IN MUSIC, upon graduates from the four-year course in Music.

A graduate of any of the courses may receive the baccalaureate degree of any other course by completing the additional studies required in that course. But two baccalaureate degrees cannot be taken in one year, and for a second bachelor's degree in the College of Letters and Science there are required one year's additional study and a special thesis.

The conditions on which the bachelor's degrees are given will be found stated under the appropriate colleges and courses on subsequent pages.

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HIGHER DEGREES

The highest degree that the University confers in course is that of *Doctor of Philosophy*. The degree of *Master of Arts* is conferred as a second degree upon candidates who have received the degree of *Bachelor of Arts* or an equivalent, and the degree of *Master of Science* or *Master of Philosophy* upon candidates who have received the corresponding baccalaureate degrees. Candidates who have taken the degree of *Bachelor of Science* in one of the engineering courses may receive the degree of *Civil Engineer*, *Mechanical Engineer*, or *Electrical Engineer*.

The conditions on which these higher degrees are granted will be found stated under the Graduate School, and also under the various colleges.

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THE COLLEGE OF LETTERS AND SCIENCE

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
E. A. BIRGE, Ph. D., Sc. D., LL. D., Dean, and Professor of Zoology.

T. S. ADAMS, Ph. D., Assistant Professor of Political Economy.
C. E. ALLEN, Ph. D., Assistant Professor of Botany.
C. R. BARDEEN, M. D., Professor of Anatomy.
A. C. L. BROWN, Ph. D., Assistant Professor of English.
*W. G. BLEYER, Ph. D., Assistant Professor of English.
D. E. BURCHELL, A. B., Professor of Business Administration.
W. B. CAIRNS, Ph. D., Assistant Professor of American Literature.
VICTOR COFFIN, Ph. D., Assistant Professor of European History.
J. R. COMMONS, A. M., Professor of Political Economy.
G. C. COMSTOCK, Ph. B., LL. B., Professor of Astronomy.
C. A. CURTIS, A. B., Professor of Military Science and Tactics.
W. W. DANIELLS, M. S., Sc. D., Professor of Chemistry.
R. E. N. DODGE, M. A., Assistant Professor of English.
*L. W. DOWLING, Ph. D., Assistant Professor of Mathematics.
E. C. ELLIOTT, Ph. D., Assoiate Professor of Education.
†R. T. ELY, Ph. D., LL. D., Professor of Political Economy.
M. B. EVANS, Ph. D., Assistant Professor of German.
N. M. FENNEMAN, Ph. D., Professor of Geology.
RICHARD FISCHER, Ph. C., Ph. D., Assistant Professor of the Theory and Practice of Pharmacy.
C. R. FISH, Ph. D., Assistant Professor of American History.
*G. C. FISKE, Ph. D., Assistant Professor of Latin.
‡D. B. FRANKENBURGER, A. M., LL. B., Professor of Rhetoric and Oratory.
J. C. FREEMAN, LL. D., Professor of English Literature.
W. D. FROST, Ph. D., Assistant Professor of Bacteriology.
LUCY M. GAY, B. L., Assistant Professor of Romance Languages.
W. F. GIESE, A. M., Associate Professor of Romance Languages.
G. D. HADZSITS, Ph. D., Acting Assistant Professor of Latin.

*On leave of absence for the academic year 1905-06.
†On leave of absence for the second semester, 1905-06.
‡Died February 6, 1906.

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R. A. HARPER, Ph. D., Professor of Botany.
*W. H. HOBBS, Ph. D., Professor of Mineralogy and Petrology.
A. R. HOHLFELD, Ph. D., Professor of German.
S. J. HOLMES, Ph. D., Assistant Professor of Zoology.
F. G. HUBBARD, Ph. D., Professor of the English Language.
CAROLINE L. HUNT, A. B., Professor of Home Economics.
JOSEPH JASTROW, Ph. D., Professor of Psychology.
LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.
ALEXANDER KERR, A. M., Professor of the Greek Language and Literature.
EDWARD KREMERS, Ph. G., Ph. D., Professor of Pharmaceutical Chemistry.
A. G. LAIRD, Ph. D., Assistant Professor of Ancient Languages.
H. B. LATHROP, A. B., Associate Professor of English.
C. K. LEITH, Ph. D., Professor of Geology.
VICTOR LENHER, Ph. D., Associate Professor of Chemistry.
R. L. LYMAN, A. B., Assistant Professor of Rhetoric and Oratory.
*W. S. MARSHALL, Ph. D., Associate Professor of Zoology.
ABBY S. MAYHEW, Assistant Professor of Physical Training.
CHARLES MCCARTHY, Ph. D., Lectures in Political Science.
E. B. MCGILVARY, Ph. D., Professor of Philosophy.
†C. E. MENDENHALL, Ph. D., Professor of Physics.
‡B. H. MEYER, Ph. D., Professor of Political Economy.
JESSIE M. MEYER, B. S., Mistress of Chadbourne Hall.
W. S. MILLER, M. D., Associate Professor of Anatomy.
D. C. MUNRO, A. M., Professor of European History.
J. E. OLSON, B. L., Professor of Scandinavian Languages and Literature.
†M. V. O'SHEA, B. L., Professor of the Science and Art of Education.
E. T. OWEN, Ph. D., Professor of the French Language and Literature.
F. A. PARKER, Professor of Music.
J. B. PARKINSON, A. M., Professor of Constitutional and International Law.
J. F. A. PYRE, Ph. D., Assistant Professor of English Literature.
P. S. REINSCH, Ph. D., Professor of Political Science.
E. C. L. C. ROEDDER, Ph. D., Assistant Professor of German Philology.

*On leave of absence for the academic year 1905-06.
†On leave of absence for the second semester, 1905-06.
‡On leave of absence.

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*W. A. Scott, Ph. D., Professor of Political Economy.
G. C. Sellery, Ph. D., Assistant Professor of History.
F. C. Sharp, Ph. D., Professor of Philosophy.
Grant Showerman, Ph. D., Assistant Professor of Latin.
E. B. Skinner, Ph. D., Assistant Professor of Mathematics.
M. S. Slaughter, Ph. D., Professor of Latin.
C. S. Slichter, M. S., Professor of Applied Mathematics.
C. F. Smith, Ph. D., Professor of Greek and Classical Philology.
H. A. Smith, M. A., Professor of Romance Languages.
B. W. Snow, Ph. D., Professor of Physics.
S. E. Sparling, Ph. D., Assistant Professor of Political Science.
Susan A. Sterling, M. L., Assistant Professor of German.
†H. C. Taylor, Ph. D., Assistant Professor of Political Economy.
A. W. Tressler, A. B., Inspector of Schools.
Augustus Trowbridge, Ph. D., Professor of Mathematical Physics.
*F. J. Turner, Ph. D., Professor of American History.
C. A. Van Velzer, Ph. D., Professor of Mathematics.
E. K. J. H. Voss, Ph. D., Professor of German Philology.
W. H. Williams, A. B., Professor of Hebrew and Hellenistic Greek.
A. A. Young, Ph. D., Assistant Professor of Political Economy.

Allen, Bennet M., Ph. D., Instructor in Anatomy.
Allen, Florence E., M. L., Instructor in Mathematics.
Allen, Katharine, Ph. D., Instructor in Latin.
Allen, Rolland C., A. B., Assistant in Geology.
Allen, Ruth F., A. B., Assistant in Botany.
Bass, Elizabeth, A. B., Instructor in Physical Training.
Beatty, Arthur, Ph. D., Instructor in English.
Berkeley, Frances C., A. M., Instructor in English.
Blackwelder, Eliot, A. B., Instructor in Geology.
Boardman, Eliot, A. B., Assistant in French.
Bode, Boyd H., Ph. D., Instructor in Philosophy.
Buck, Solon J., M. A., Assistant in American History.
Clawson, Arthur B., A. B., Assistant in Zoology.
Colton, Allen L., M. A., Instructor in Physics.
Cook, Edward A., B. L., Instructor in English.
Cool, Charles D., A. M., Assistant in Romance Languages.
Crawford, Clarence C., M. A., Assistant in European History.

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*On leave of absence for the second semester, 1905-06.
†On leave of absence for the first semester, 1905-06.

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CRAWFORD, DAVID A., A. B., Assistant in Anatomy.
DEARBORN, WALTER F., Ph. D., Instructor in Education
DENNISTON, ROLLIN H., Ph. D., Instructor in Botany.
DICKINSON, THOMAS H., A. M., Instructor in English.
DILWORTH, JAMES F., M. A., Assistant in European History.
DOWD, JEROME, M. A., Resident Lecturer in Sociology.
DUMEZ, ANDREW G., Ph. G., Assistant in Pharmacy.
GILMAN, STEPHEN W., LL. B., Instructor in Business Administration.
GOODNIGHT, SCOTT H., Ph. D., Instructor in German.
GRIMES, N. C., A. B., Instructor in Mathematics.
HAERTEL, MARTIN H., Ph. B., Assistant in German.
HALL, EDWARD B., B. S., Assistant in Geology.
HALL, ROY, Ph. D., Instructor in Chemistry.
HAUSSMANN, JOHN F., Ph. D., Instructor in German.
HESS, RALPH H., M. S., Assistant in Political Economy.
HILMER, HERMANN, A. M., Assistant in German.
HOTCHKISS, WILLLIAM O., B. S., Instructor in Geology.
HUNTINGTON, ELLEN A., A. B., Instructor in Home Economics.
HUTCHINS, EDGAR B., Jr., Ph. D., Instructor in Chemistry.
INGERSOLL, LEONARD R., Ph. D., Instructor in Physics.
KATZ, FRANK J., A. B., Assistant in Geology.
KELLEY, FREDERICK T., Ph. D., Instructor in Hebrew and Hellenistic Greek.
KEMMERER, GEORGE I., A. B., Assistant in Chemistry.
KIND, JOHN L., Ph. D., Instructor in German.
KOELKER, WILLIAM F., Ph. D., Instructor in Organic Chemistry.
KUHLMAN, FRED, Ph. D., Assistant in Psychology.
LAMONT, MARION, Instructor in Elocution.
LEHMAN, DANIEL A., M. A., Instructor in Mathematics.
LEHMANN, GOTTFRIED, Assistant in German.
LORENZ, MAX O., A. B., Instructor in Political Economy.
LUTMAN, BENJAMIN F., A. B., Assistant in Botany.
MACNISH, RALPH B., M. A., Instructor in French.
MARQUETTE, WILLIAM G., B. S., Assistant in Botany.
MCCONACHIE, LAUROS G., Ph. D., Assistant in Political Science.
MCNEIL, ANNE, Ph. M., Assistant in Education.
MEISNEST, FREDERICK W., Ph. D., Instructor in German.
MILLER, LOUALLEN F., M. A., Instructor in Physics.
MORITZ, EARNEST A., C. E., Instructor in Mathematics.
NEIDIG, WILLIAM J., A. B., Instructor in English.

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NELLES, WALTER R., A. B., Instructor in English.
NORTH, HARRY B., B. S., Instructor in Chemistry.
OLIVE, EDGAR W., Ph. D., Lecturer in Botany.
OVERTON, JAMES B., Ph. D., Instructor in Botany.
PAHLOW, EDWIN W., M. A., Instructor in History.
*PATTEN, HARRISON E., Ph. D., Instructor in Physical Chemistry.
PATTERSON, DAVID L., B. S., Instructor in History.
PATZER, OTTO, M. L., Instructor in French.
PEOTTER, REUBEN S., B. S., Instructor in Mathematics.
†PERSONS, WARREN M., B. S., Instructor in Mathematics.
PHILLIPS, ULRICH B., Ph. D., Instructor in American History.
PROKOSCH, EDUARD, Ph. D., Instructor in German.
PURIN, CHARLES M., Student Assistant in German.
RABAK, FRANK, Ph. G., B. S., Instructor in Pharmaceutical Technique.
RASTALL, BENJAMIN M., M. A., Assistant in Mathematics.
REED, GEORGE M., A. M., Assistant in Botany.
ROE, FREDERICK W., A. M., Instructor in English.
SCHLATTER, EDWARD B., A. M., Instructor in Romance Languages.
SEYMOUR, ARTHUR R., M. L., Instructor in Romance Languages.
SHANKS, L. P., A. M., Instructor in Romance Languages.
SHINN, FREDERICK L., A. M., Instructor in Analytical Chemistry.
SIEVERS, ARTHUR, Ph. G., Assistant in Pharmaceutical Chemistry.
SMITH, EDWIN R., A. B., Instructor in Mathematics.
SMITH, RALPH O., Ph. D., Instructor in Chemistry.
SPENCE, BARTHOLOMEW J., B. S., Assistant in Physics.
SUYDAM, VERNON A., B. S., Assistant in Physics.
TERRY, EARLE M., A. M., Instructor in Physics.
THOMPSON, JOHN G., A. M., Assistant in Political Economy.
TIBBALS, CHARLES A., JR., A. B., Instructor in Chemistry and Assaying.
VEERHUSEN, ELSBETH, Ph. D., Instructor in German.
VOEGTLIN, CARL, Ph. D., Instructor in Chemistry.
VORHIES, CHARLES T., B. S., Assistant in Zoology.
WAGNER, GEORGE, M. A., Instructor in Zoology.
WENIGER, WILLIBALD, A. B., Assistant in Physics.
WETZEL, REINHARD A., B. S., Assistant in Physics.
WICKENDEN, WILLIAM E., B. S., Assistant in Physics.
WILLIAMS, ELMER H., A. B., Assistant in Physics.

*Resigned, January 31, 1906.
†Resigned, February, 1906.

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WOLFF, HENRY C., M. S., Instructor in Mathematics.
WOOLLEY, EDWIN C., Ph. D., Instructor in English.
WORTHING, ARCHIE G., A. B., Assistant in Physics.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

1. General Conditions

The unit-hour is the standard for computing the amount of work required for graduation. This is equal to one hour of recitation or lecture per week for one semester. Two hours of laboratory work or two hours regularly prescribed military drill or physical exercise in the gymnasium are credited as one unit-hour. Students are expected to take 15 hours per week in recitations, lectures, and laboratory work, making 30 unit-hours per year, and 120 for the course. In addition two hours per week (one unit-hour per semester) of gymnastics are required during the first two years, making a total of four unit-hours. Men are required to drill two hours per week during the first two years, giving a credit of four unit-hours. The total requirements for class-room work, military drill, and the gymnasium are, therefore, 128 unit-hours for the men, and 124 for the women.

Students excused from drill or gymnastics are required either to make up the work before graduation, or if the excuse is based on permanent incapacity, to make good the requirement by work in other departments.

No student will be permitted to receive a credit toward graduation of more than eighteen unit-hours in one semester in regular studies except by permission of the Faculty, obtained in advance.

Students transferring from the Course in Commerce, or from another college of the University, can receive no more than fifteen unit-hours' credit per semester toward graduation for work already done, except in semesters where all standings are 85 or above.

2. Required Studies

a. English, 6 unit-hours (3 hours per week for two semesters); to be taken in the first year of residence.

b. Language: 16 unit hours for those who offer four years or more of language at entrance; 24 unit-hours for those who offer less than four years of language at entrance. The work shall be in year courses in two languages. Ordinarily the two must be chosen from the following groups: Greek (classical), Latin,

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French, German; but advanced work in another foreign language, to an amount not exceeding eight units, may be substituted in part fulfilment of this requirement, on the following conditions:

(1) The student must study the language more than one year. (2) Only the work beyond the first year ("advanced work"), can be substituted. The first year's work will be accepted toward the required units for graduation, though not as part of the required units of language.

c. Two of the following: Natural Science, 10 unit-hours; Mathematics, 6 unit-hours; History, 6 unit-hours.

Under natural science are included biology, chemistry, physics, and geology. The latter science cannot be taken in the freshman year; the others may be so elected. All are five-hour courses with laboratory work, or field work in geology.

3. Major Study and Thesis

Major Study.—At the beginning of the sophomore or the junior year, every candidate for the degree of Bachelor of Arts shall select as his major subject the work of some one department in the College of Letters and Science. This department will determine the manner in which the work of the major shall be completed; the work required in the major (including thesis and required work) shall not be less than 20 hours, nor more than 40 hours; the credit for the thesis being four hours.

Thesis.—All candidates for a baccalaureate degree are required to present a graduating thesis the subject of which must be approved by the student adviser and the professor at the head of the department in which the candidate is doing the work represented by the thesis. The thesis must represent some phase of the student's work in his major study, and must have the character of a scholarly dissertation on the subject. The thesis must be typewritten on paper of good quality, 8x10 inches in size, and must be bound according to specifications furnished by the Librarian of the University. It must be deposited in the University Library by June 1st.

Before the thesis is accepted, it must be approved by the instructor under whom the work has been done, and by the head of the department. When accepted, the thesis becomes the property of the University.

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4. Electives.

All work not included in 2 and 3 is elective, but there shall not be taken in any one department more than 40 hours, including required work in excess of 6 hours, major, and electives. However, high school work for which university credit is given shall not count as a part of these 40 hours.

5. Studies of the Freshman Year

In this year one study only is absolutely required: English, course 1, three hours per week. All the other studies of the year must be chosen from the following groups:

GROUP I. At least one subject must be taken from this group and not more than 10 unit-hours may be chosen from any one subject.

Greek: 5 or 3 hours per week.
Latin: 5 or 3 hours per week.
German: 4 hours per week.
French: 4 hours per week.
Spanish: 4 hours per week (in the Course in Commerce).

GROUP II. At least one subject must be chosen from this group. Not more than 10 unit-hours can be taken in any one subject.

Mathematics:
- Algebra: 3 hours, one semester.
- Trigonometry: 3 hours, one semester.

These courses in Mathematics are repeated each semester.

Science:
- Biology: 5 hours.
- Chemistry: 5 hours.
- Physics: 5 hours.
- Astronomy: 3 hours, one semester.
- Physiography of the United States: 3 hours, one semester.
- Physical Geography: 3 hours, one semester.

History:
- Ancient History: 2 hours.
- English History: 2 or 3 hours.
- Medieval History: 3 hours.
- American History: 2 hours.

The student may take 14, 15, or 16 hours from these studies. The combination may be made by adding to English (3 hours) two foreign languages from Group I (6 to 10 hours), with one subject

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from Group II (3 to 5 hours); or by taking but one foreign language (3 to 5 hours) with two subjects from Group II (6 to 10 hours). Students are advised to carry on the language, or languages, which they have had in preparatory school. Those who come with a language preparation consisting only of two years of German will be expected to continue that subject during the freshman year.

The following courses which are open to freshmen will be found described under Departments of Study on the following pages. The figures following the name of the department refer to the number of the course as given under the proper heading under Departments of Study.

English 1, Greek A, Greek 1, Latin A, Latin 1 and 2, French 1, 4, and 10, German 1, 2, 2A, Mathematics 1 and 2, History 1, 3, 5, 6, and 10, Biology 1, Chemistry 1, Physics 1, Astronomy 1. The last named course cannot constitute a part of the required science.

ELECTION OF STUDIES IN OTHER COLLEGES

Candidates for the degree of Bachelor of Arts are allowed to elect in the College of Mechanics and Engineering, the College of Law, the College of Agriculture, the Course in Pharmacy, the Course in Commerce, the Course in Music, or the Course in Home Economics, certain studies enumerated below to an amount not to exceed the equivalent of twenty unit-hours. This privilege will not be extended to Normal graduates attempting to graduate in two years, nor to undergraduates of other colleges who enter this University with the rank of seniors.

When approved by the Dean of the College of Engineering, an additional election of six hours is permitted in the case of students who propose to proceed to the degree of Bachelor of Science, Civil Engineering.

In the application of the twenty-hour rule, above set forth, candidates for the degree of Bachelor of Arts, with the exception of seniors taking law studies, are not allowed to elect more than five of the twenty hours in any one semester. Studies in the College of Law may be elected only by seniors.

Students who take the combined law and arts course in six years are not permitted to count toward their A. B. degree studies which are parallel to studies at present required in the College of Law. Such studies are the course in Commercial Law, in the Course of Commerce (course 9, in the department of Political

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Economy), and course 13, Constitutional Law, in the department of Political Science.

Students who have graduated from the College of Letters and Science will be admitted to middle year standing in the College of Law, provided that while seniors in the College of Letters and Science they completed fourteen semester hours in the prescribed work of the junior year of the College of Law, and in addition thereto have completed six semester hours of work in the College of Letters and Science from a group of studies to be designated by the Faculty of the College of Law. The studies designated for 1905-06 are as follows: Political Science 2, (Elementary Law), Political Science 9, (Roman Law), Political Science 13, (American Constitutional Law), Political Science 18, (International Law), Political Science 27 (Comparative Legislation).

The following studies may be elected:

In the College of Engineering:

Mechanical Drawing, courses 1, 2, and 3.
Applied Mechanics, 1, 2, 3, 4, 5, and 6.
The Materials of Construction, 1, 2, and 3.
Topographic and Geodetic Engineering, 1, 2, 3, 4, 5, and 6; also 9 and 10.
Railway Engineering, 5.
Hydraulic Engineering, 1 and 3.
Structural and Sanitary Engineering, 1, 2, 3, 10, and 11.
Municipal and Sanitary Engineering, 1, 2, and 4.
Steam Engineering, 3, 4, and 5.
Mechanical Laboratory, 1 and 2.
Machine Design, 1, 3, and 4.
Applied Electromagnetism and the Construction of Dynamos, 1 and 2.
Alternating Currents and Alternating-current Machinery, 1, 2, 3, 4, 5, and 6.
Applied Electrochemistry and Electrometallurgy, 1, 2, 3, and 5.
Electric Installations, 4 and 10.

In the College of Law:

Contracts.
Commercial Paper.
Real Property.
Torts.

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Private Corporations.
Constitutional Law.
Wills.
Domestic Relations.
Common Law Pleading.
Equity.
Evidence.
Agency.
Public Service Companies.

The law courses in italics may be taken only after suitable preliminary studies. Applications for these advanced studies must be made to the committee in charge, consisting of the Dean of the College of Law and Professor Reinsch.

In the College of Agriculture:

Agricultural chemistry, 1, 2, and 3.
Soils, 1 and 2.
Animal husbandry, 2.
Veterinary Science, 3.
Dairy husbandry, 4.
Horticulture, 1 and 8.
Bacteriology, 17.
Farm Engineering, 1.

In the Course in Commerce:

All courses except the one in Business Administration, which can only be taken in addition to the required 120 units, by students of suitable preparation.

In the Course in Pharmacy:

All courses except Pharmacognosy under botany and the courses in the department of Pharmacy.

In the Course in Music:

Courses 2 to 10, inclusive.

REQUIREMENTS FOR A DEGREE IN THE COURSE IN COMMERCE

Students who have completed the regular four years' course of the Course in Commerce will receive the degree of *Bachelor of Arts.* (See Index.)

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REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

Students who have completed the regular four years' course of the Course in Pharmacy will receive the degree of *Bachelor of Science, Pharmacy Course.* (See Index.)

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Course for Normal School Graduates

Graduates of the advanced courses of the Normal schools of the State are admitted to advanced standing in the College of Letters and Science on conditions given under the heading Admission (see Index). The following special course for Normal school graduates has been arranged, leading in two years to the degree of *Bachelor of Philosophy.* The course contains a minimum required amount of advanced studies in Philosophy and Education, with opportunity for further elections in those subjects. It requires also a continuous study of foreign language during the two years of the course. In other directions the student may elect his studies. It is expected that the Normal school graduate will give especial attention to fitting himself for teaching in one or two of the main lines of instruction, and the requirements and electives have been so arranged as to permit him to attain this end. He may devote himself especially to science, to literature, to history, or to any combination of these studies. He will be required, however, to make one of these lines of study his major work, and will not be permitted to elect a large number of short, scattered courses of instruction, since it is the especial design of this course to enlarge and complete his knowledge in certain definite directions.

The attention of the student is called to the necessity of planning his course from the beginning so as to satisfy the requirements for a thesis.

Junior Year: Latin, French, or German 4; Philosophy 3; advanced education 3; language, history, English, advanced mathematics, or science 5; electives 3 to 5: 18 hours per week required.

Senior Year: Continuation of Latin, French, or German 4; electives 12; thesis 2: 18 hours per week required.

Any member of the course who offers work in foreign language equal in amount to that required of candidates for the degree of Bachelor of Arts, will not be required to pursue courses in foreign

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language in the University; and no student in this course will be required to do more work in foreign language than is demanded for the degree of Bachelor of Arts.

Military drill and gymnastic exercise are not required of Normal school graduates, no matter what course they may enter.

GRADUATION IN LESS THAN FOUR YEARS

The attention of students is called to the announcement of the Summer Session of the University, as given on subsequent pages of the Catalogue. Work in the Summer Session will be credited in the same way as work in the regular session of the University, and by attendence at one session a total amount of credit may be acquired not exceeding six unit-hours.

Candidates for the degree of Bachelor of Arts who desire to graduate in three years may do so by taking 18 hours of recitations per week and by attending three summer sessions. Permission to take work to this amount will be given only to students whose standing in their studies is wholly satisfactory. No credit will be given for repetition in the Summer Session of studies taken in the regular session of the University, or for repeating in the University work done in the summer. Students will need to select carefully their work for the summer with reference to the required and elective studies of the course in which they intend to graduate. The Summer Session offers exceptional opportunities for the preparation of a senior thesis. Any student who expects to shorten his course by means of the Summer Session should consult his class adviser in selecting his studies.

STUDENT ADVISERS

Upon entrance, each student in the College of Letters and Science is assigned to a member of the Faculty who acts as his adviser during the freshmen and sophomore years. At the beginning of the junior year, at which time, if not before, the student selects his major study, a professor in the department in which his major is chosen becomes his adviser. Each semester, the student is required to consult his adviser concerning the choice of studies, and the adviser must give his approval before the student is permitted to enter classes.

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DIPLOMAS AS STATE CERTIFICATES

A law enacted by the legislature of 1901 states:

"A diploma granted upon the completion of a regular collegiate course of the University of Wisconsin, if accompanied by a certificate that the bearer has completed the course of pedagogical instruction prescribed by the University for all persons who intend to teach, * * * * upon presentation to the State Superintendent shall entitle the holder to receive from that officer a certificate which shall authorize him to teach in any public school for one year."

Sections 458 *b* and *d* of the Revised Statutes provide that after one year of successful teaching the diploma of a graduate of the University may be countersigned by the State Superintendent, and that when so countersigned the diploma shall have the force and effect given by law to the unlimited state certificate.

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DEPARTMENTS OF INSTRUCTION

PHILOSOPHY

PROFESSOR M'GILVARY, PROFESSOR JASTROW, PROFESSOR SHARP, DR. BODE, AND DR. KUHLMANN

The student is at liberty to begin his work in philosophy with any of the courses designated as primarily for undergraduates. But those who desire to take three hours' work through one year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 1 or 31 in the first semester, and either 11, 21, 32, or 41 in the second semester.

The requirements for an undergraduate major in Philosophy are a minimum of twenty semester hours, including the thesis. Of these, at least eight hours must be taken from the courses for undergraduates and graduates.

Primarily for Undergraduates

1. Psychology: Introductory Course. *First semester.* Professor JASTROW and Professor SHARP, Dr. BODE and Dr. KUHLMANN.
   Section 1. *Tu., Th., at* 9, *and F., at an hour to be arranged.* Professor JASTROW and Dr. KUHLMANN.
   Section 2. *M., W., at* 9, *and F., at an hour to be arranged.* Professor SHARP and Dr. BODE.
11. Logic. *First semester; M., W. F., at* 10. *Repeated in the second semester; M., W., F., at* 8. Dr. BODE.
12. Applied Logic. A study of the more common fallacies, with training in detecting them: the conditions of proof and the laws of evidence illustrated by practical exercises. *Second semester; M., W., F., at* 10. (Omitted in 1906-07.) Dr. BODE.
21. Introduction to Philosophy. The relation of philosophy to the special sciences; the point of view taken in philosophical study; the problems of philosophy and the various solutions that have been suggested: materialism; agnostic-

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ism; theism; idealism; realism; the nature of mind and of the external world as viewed by the various schools; man's place in the world; the problem of knowledge; human will and natural law; the problem of ethics; the tendencies of present-day thought. *Second semester; M., W., F., at* 9. Professor McGILVARY.

22. German Philosophy as Reflected in German Literature. The philosophical teachings of Lessing, Herder, Goethe, Schiller, the Romanticists: Hebbel, Wagner, and Nietzsche. *First semester: Tu., Th., at* 11. (Omitted in 1906-07.) Dr. BODE.

23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature. A study of Wordsworth, Carlyle, Emerson, Arnold, Tennyson, and Browning. *Second semester: Tu., Th., at* 11. Dr. BODE.

31. History of Ancient and Medieval Philosophy. *First semester; M., W., F., at* 11. Professor McGILVARY.

32. History of Modern Philosophy. A study of the development of philosophy from the Renaissance to the present day. The influence of scientific discovery, scientific speculation, and political and economic conditions upon philosophic movements will be exhibited; the important systems will be expounded and their historical relations will be traced, and finally the net results of this evolution will be summed up in an account of the philosophical thought and problems of the present. *Second semester; M., W., F., at* 11. Professor McGILVARY.

41. Ethics: Introductory Course. *Second semester; M., W., F., at* 9. Professor SHARP.

42. Social and Political Ethics. A general study of moral rights, of the rights of personal liberty, freedom of contract, conquest, national independence, suffrage, and property. *First semester; Tu., Th., at* 12. Course 41 is not required as a preliminary. Professor SHARP.

51. Aesthetics. A general survey of aesthetical appreciation, with practical applications to art. An introductory course requiring no previous acquaintance with aesthetics. *First semester; Tu., Th., at* 10. Professor JASTROW.

For Undergraduates and Graduates

2. Advanced Analytic Psychology. *Second semester; M., W., at* 8. Professor SHARP.

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4. Experimental Psychology. (*a*) Lectures and demonstrations. *Second semester; M., W., F., at* 9. (*b*) Laboratory practice, parallel with lectures. *Second semester; four hours a week, at hours to be arranged.* (*a*) and (*b*) together count as a full study. Professor JASTROW.
5. Research in Psychology. *Throughout the year; hours to be arranged.* Professor JASTROW.
6. Comparative Psychology. Lectures and assigned readings on animal psychology and mental development in man. *First semester; M., W., at* 3. Professor JASTROW.
7. Abnormal Psychology. Lectures and assigned readings covering the main forms of unusual and abnormal mental phenomena. *Second semester; Tu., Th., at* 10. (Omitted in 1906-07.) Professor JASTROW.
8. Anthropology. Lectures and readings. Tylor's *Anthropology. Second semester; Tu., Th., at* 10. Professor JASTROW.
9. The Psychology of Language. A survey of the language-processes and their mode of action as illustrated by the study of language in its growth, in disease, among primitive peoples, in history, and as a logical product. *First semester; M., W., at* 3. (Omitted in 1906-07.) Professor JASTROW.
24. The Philosophy of Religion. The conception of God in Christian theology and in modern philosophy; the nature of religion; the relation of religion to revelation, miracle, dogma, and morality. *First semester; Tu., Th., at* 10. Dr. BODE.
25. The Relation of Man to Nature. The existence of purpose in nature; the influence of the doctrine of evolution upon our conception of man's place in the universe and upon theism; the problem of freedom; the problem of evil. *Second semester; Tu., Th., at* 10. Dr. BODE.
36. The British Philosophers of the Eighteenth Century. Locke, Berkeley, and Hume. *First semester; M., W., F., at* 10. Professor MCGILVARY.
37. Kant. *The Critique of Pure Reason. Second semester; M., W., F., at* 10. Professor MCGILVARY.
44. History of Morality. An outline history of moral practice in primitive, ancient, medieval, and modern times. Especial emphasis will be laid on moral customs divergent from those now current among civilized peoples, in order to show

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how moral ideals vary according to the conditions of life. Among the ancient historical nations studied are the Egyptians, Babylonians, Hindus, Hebrews, Greeks, and Romans. The relation of primitive Christian morality to previous moral types will be considered; then the part played by Christianity as a factor in subsequent moral development will be reviewed; and finally modern occidental morality will be shown as a result of the joint action of many influences, some of which will be examined in considerable detail. *First semester; M., W., F., at* 10. Professor McGILVARY.

45. The Evolution of Morality. *First semester; M., W., at* 8. Professor SHARP.

46. Contemporary Moralists. *Second semester; twice a week.* Professor SHARP.

Primarily for Graduates

10. Psychological Seminary. *Throughout the year; alternate weeks.*

13. Advanced Logic. *Two hours a week throughout the year.* Dr. BODE.

40. Metaphysics. *Throughout the year; Tu.,* 4 *to* 6. Professor McGILVARY.

47. Ethical Seminary. *Throughout the year; alternate weeks; W.,* 4 *to* 6. Professor SHARP.

EDUCATION

PROFESSOR O'SHEA,* ASSOCIATE PROFESSOR ELLIOTT, ASSISTANT PROFESSOR TRESSLER, DR. DEARBORN, AND MISS M'NEIL

Primarily for Undergraduates

1a. History of Education. Ancient and medieval periods. Lectures, collateral readings, and special reports. A study of typical culture periods by means of their educational ideals, processes, and institutions. The aim throughout will be to interpret the meaning of progress in civilization, and to indicate the place and influence of education in the solution of the relation of the individual to the social whole. Static

*On leave of absence for the second semester, 1905-06.

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types of culture as represented by the American Indian and the Chinese. Education among the Hebrews, Greeks, and Romans. The rise and influence of Christianity. The evolution of Christian ideals, and the development of the different types of educational institutions in Europe during the Middle Ages. The Renaissance and its implications for educational progress. *First semester; M., W., F., at* 9. Associate Professor ELLIOTT.

1b. History of Education. Modern period. The social-intellectual movements growing out of the Reformation. The influence of the educational reformers and theorists of the seventeenth, eighteenth, and nineteenth centuries in the evolution of modern educational standards and institutions. The rise and significance of state education. *Second semester; M., W., F., at* 9. Associate Professor ELLIOTT.

The course in the History of Education is intended to be a survey of the entire field; yet each half is a unit in itself, and students may elect 1a and 1b separately.

11a. Mental Development. The work of this semester will cover (1) the general characteristics of development; (2) the theory of recapitulation in development; (3) motor development; (4) mental economy and hygiene in development. The educational bearings of the principles discussed will be indicated. *First semester; M., W., F., at* 10. Professor O'SHEA.

11b. Mental Development. This is a continuation of course 11a, but it may be elected separately. The work will cover (1) intellectual development; (2) emotional development; (3) adolescence. *Second semester; M., W., F., at* 10. Professor O'SHEA.

40. Elementary Educational Psychology. An introductory course in psychology, with special reference to its educational aspects and applications. *Second semester; M., W.. F., at* 8. Dr. DEARBORN.

For Undergraduates and Graduates

4a. Administration and Supervision of Education. Lectures, reports, and class discussions of special topics. Among the topics treated will be: Public education and American social theory. The evolution, legal organization, operation, and principles underlying the typical forms of administrative

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and supervisory control of education—national, state, county, district, and municipal. The problem of the financial support of public education. Location, erection, equipment, sanitation, heating, ventilating, and lighting of school buildings. The education, selection, certification, salary, and tenure of teachers. Construction of courses of study and programs for varying types of public schools. Selection and valuation of text-books. Grading, examination, and promotion of pupils. Compulsory education and discipline. The function, scope, and character of official reports. Supplementary agencies for education within and without the public school. *First semester; Tu., Th., S., at* 9. Associate Professor ELLIOTT.

4b. Administration and Supervision of Education. The purpose will be to trace the evolution of the curriculum in American public schools, to interpret its current aspects in the light of modern psychological and social theory, and to indicate the efficient modes of direction and control by supervisory authorities for the realization of the aim of public education. The recitation as the focal point of supervision, and the relation of supervision to the work of the class teacher. The means and method for improvements of the work of teachers. Special attention to these problems from the standpoint of the elementary school. *Second semester; Tu., Th., S., at* 9. Associate Professor ELLIOTT.

While this course has been arranged for continuation throughout the entire year, each half of it is intended to be a unit in itself, and students may elect 4a and 4b separately.

5. Comparative Educational Administration. Lectures and special reports. A comparative study of the educational systems of Germany, France, and England, with special emphasis upon those features possessing significance for American education. Open only to students who secure permission of the instructor. *Second semester; S.,* 10 *to* 12. Associate Professor ELLIOTT.

13. Principles of Education. Treated with special reference to the high school. The first half of the course is devoted to a study of the foundations of educational theory viewed in the light of contemporary thought. The second half is devoted to a consideration of practical problems of curriculum, methods, and management. *First semester; M., W., F.,*

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at 11. *Repeated the second semester at the same hour.* Professor O'SHEA.

15. Contemporary Educational Movements. Contemporary movements at home and abroad affecting courses of study, the general character and method of teaching, and school organization and management. *First semester; M., W., at* 12. Professor O'SHEA and Associate Professor ELLIOTT.

16. Educational Classics. With reference particularly to present problems. Readings in Montaigne, Locke, Rousseau, Mill, and Spencer. *Second semester; M., W., at* 12. Professor O'SHEA.

31. Secondary Education in the United States. Brown's *The Making of Our Middle Schools* will be the text used, supplemented by lectures, assigned readings, and special reports. The course will trace the growth of secondary schools during the Colonial period, the development of public high schools, and the influence of European ideas in American schools. The latter part of the course will be devoted to recent tendencies and current problems in high school organization and management. *Second semester; M., Tu., at* 8. Assistant Professor TRESSLER.

32. Seminary in Administration and Supervision of Education. A research course for advanced students who desire to investigate some of the larger problems in the sphere of the administration and supervision of education, especially in cities. Students presenting theses in the administrative and supervisory phases of education are required to register for this course. *Throughout the year; on alternate Fridays,* 4 *to* 6. Associate Professor ELLIOTT.

41. Advanced Educational Psychology. Lectures and demonstrations; class experiments and reports. The psychology of learning and the application of the principles of psychology to teaching. Introductory lectures on growth, development, deficiency, and individual differences in capacity and intellect. *Two-fifths or three-fifths credit. First semester; Tu., Th., at* 9, *and F., at an hour to be determined. Repeated the second semester.* Dr. DEARBORN.

42. Research in Education. Investigation of special problems, chiefly of a psychological character, which bear upon educational theory and practice. *Throughout the year; two-*

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fifths or three-fifths credit. Hours to be arranged. Dr. DEARBORN.

43. Seminary in Educational Psychology. Methods of investigation and the literature of selected experimental studies and researches in the field of educational psychology. *Alternate Wednesdays*, 4 *to* 6. Dr. DEARBORN.

Primarily for Graduates

14. Genetic Psychology. The psychology of development in some of the principle types of educational work. Both the genetic and statistical methods will be employed, with emphasis on the former. Designed for advanced students in psychology and education. *Throughout the year; W.*, 7 *to* 9 P. M. Professor O'SHEA.

20. Seminary in Education. The investigation and discussion of current educational problems. Each member is required to undertake a piece of research, and report upon it during the year. Open to those only who have done at least one year's work in Education. *Throughout the year; alternate Thursdays*, 7 *to* 9 P. M. Professor O'SHEA and Dr. DEARBORN.

Students desiring the University Teachers' Certificate must obtain ten hours credit in the following branches: Philosophy 1 (three hours) and Education 1, 13, or 41 (three hours). The remaining four hours must be made up by electives from the following: Philosophy 6, 11; Education 4, 5, 11, 16, 31, 41; and the teachers' course in those subjects that the student is preparing to teach. These electives are subject to the following conditions: (*a*) the maximum number of credits allowed for the teachers' courses is two hours; (*b*) the maximum in philosophy is five hours, which includes the three hours required above.

HISTORY

PROFESSOR TURNER, PROFESSOR MUNRO, PROFESSOR DENNIS, ASSISTANT PROFESSOR COFFIN, ASSISTANT PROFESSOR FISH, ASSISTANT PROFESSOR SELLERY, DR. PHILLIPS, MR. PAHLOW, MR. PATTERSON, AND ASSISTANTS

The courses in history are divided into three groups, as follows: A. Introductory courses 1 to 10 are primarily for under-

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graduates. They cannot be counted towards advanced degrees, and graduates are required to have completed an equivalent of sixteen semester hours of these studies as a preparation for graduate work for a degree. It is recommended that students shall not cover all of the introductory courses to the neglect of advanced work. If history is chosen as one of the required subjects (see Index under Degrees), six unit hours must be taken in one course.

B. Advanced courses 11 to 46 are designed to continue the work begun in the preliminary courses in the direction of greater specialization. These courses are open to undergraduates and graduates who have taken the necessary preliminary work.

C. Courses 51 to 70 are not open to undergraduates.

History Major

The requirements for an undergraduate major in history, in addition to the thesis, are twenty-six semester hours as a minimum, selected as follows:

I. One or more introductory courses in both European and American history.

II. Advanced courses to the amount of at least ten semester hours.

For Undergraduates

1. Medieval History. A general survey of the history of Europe from the barbarian invasions to the close of the fifteenth century. Advanced students will be given special quiz sections and more advanced work. Lectures, quizzes, collateral reading, and topics. *Throughout the year; M., W., F., at* 11. Professor MUNRO, Assistant Professor SELLERY, and assistants.
2. Modern European History. A general survey extending from the close of the fifteenth century to the present day. Not open to freshmen. *Throughout the year; Tu., Th., at* 11, *and a third hour in sections. First semester*, Assistant Professor SELLERY; *second semester*, Assistant Professor COFFIN.
3. American Colonial and Revolutionary History. An introduction to the history of the United States, designed to acquaint the student with the beginnings of American institutions. Text-book, lectures, and topics. The class meets in divi-

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sions; advanced students will be given a special division. *Throughout the year; Tu., Th., at* 9 *and* 10. (Omitted after 1905-06.) Dr. PHILLIPS.

4. History of the United States. A general survey from the Revolutionary era to the present, with emphasis upon political history. Lectures, text-book, collateral reading, and topics. Not open to first year students. This course, or an equivalent, must precede all advanced courses in American history.

   To the presidency of Jackson, *first semester;* from the presidency of Jackson to the present, *second semester; M., W., F., at* 11. Assistant Professor FISH.

5. English History. An outline of political and constitutional history will serve as a framework for the study of the economic, social, and intellectual development of the nation. In addition to the lectures and text-book, collateral reading will be required. *Throughout the year; Tu., Th., at* 10, *and a third hour in sections for quiz work.* Professor DENNIS and assistants.

6. English History. A course with especial reference to social and political conditions, useful for students of English literature, and recommended to those who expect to teach history. Not open to freshmen. Students are not permitted to elect both courses 5 and 6. *Throughout the year; Tu., Th., at* 10 *and* 3. Assistant Professor SELLERY, Mr. PAHLOW, and Mr. PATTERSON.

7. History of Europe in the Nineteenth Century, 1815 to 1900. Designed for freshmen in the Course in Commerce. *Throughout the year; M., W., F., at* 11. Assistant Professor COFFIN.

8. Greek History. The political and intellectual development of the Greeks is traced, with emphasis also on social and economic changes. Text-book, lectures, and collateral reading. Not open to freshmen. *First semester; Tu., Th., S., at* 11. Mr. PATTERSON and Mr. HUTH.

9. Roman History. A general survey, with especial emphasis on the period of the later republic and early empire. Text-book, lectures, and collateral reading. Not open to freshmen. *Second semester; Tu., Th., S., at* 11. Mr. PATTERSON and Mr. HUTH.

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10. Greek and Roman History. A general survey of the history of the two peoples. Open to freshmen only. Text-book, collateral reading and frequent quizzes. *Throughout the year; Tu., Th., at* 12. Mr. PATTERSON.

For Greek and Roman Life, see Latin 12.

For Undergraduates and Graduates

11. The History of the West. Particular attention is paid to the conditions of westward migration and to the economic, political, and social aspects of the occupation of the various physiographic provinces of the United States, together with the results upon national development. Lectures, collateral reading, and topics. *Throughout the year ; M., W., F., at* 12. (Omitted in 1905-06.) Professor TURNER.

12. History of the South. Especial attention is given to the economic and social forces involved in the plantation system and the use of unfree labor in shaping the conditions of expansion and the political policies of the South. The first semester's work, extending to about 1830, deals chiefly with the internal development of the South; in the second semester, the social and political conflict of the sections is treated. The course may be elected by semesters. *Throughout the year; M., W., F., at* 11. Dr. PHILLIPS.

13. History of New England. A study of the transfer of population from Europe to the New England region, of the forces, social, economic, and political, that acted upon it there, and the expansion westward across the United States and Canada. Special stress will be laid upon development and the social conditions of the New England towns, the process of New England expansion, and the religious and intellectual development of the people. *Second semester; M., W., F., at* 10. Assistant Professor FISH.

14. History of the United States, 1816 to 1837. In this course the relations between economic, social, and political forces are considered; and the characteristics and inter-relations of the various sections of the United States are emphasized. The constitutional history of the period is studied as the outgrowth of economic and social conditions in the physiographic provinces that made up the United States. *Throughout the year; M., W., F., at* 12. (Omitted in 1906-07.) Professor TURNER.

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15. Diplomatic History of the United States. A study of the actual negotiations between the United States and other countries, of the problems involved in these negotiations, of those national movements which were diplomatic in their character, though not involving negotiations, and of the progress of international law so far as it has affected or been affected by the United States. *Throughout the year; Tu., Th., at* 10. Assistant Professor FISH.

16. Social and Economic History of the American Colonies. Attention will be given to the European influences, to the motives and methods of colonization, and to the development of systems of industry and society through the adaptation of European institutions to the American environment. *Throughout the year; M., W., at* 10. Dr. PHILLIPS.

17. The American Revolution. A general view of the British imperial system and of American conditions will be followed by treatment of the constitutional issue, the conflict of ideas and policies, and the process of political revolt and social upheaval. *First semester; Tu., Th., at* 2. Dr. PHILLIPS.

18. Civil War and Reconstruction. A general study of the history of the United States, 1860 to 1876. *First semester; M., W., F., at* 10. Assistant Professor FISH.

19. The Materials of American History. The purpose of this course is to introduce the student to the principal documentary collections. Besides the sources more generally used, the value of newspaper files, government documents, and the Draper collection of MSS. will be discussed. Lectures and reports. *Throughout the year; M., at* 2. Dr. PHILLIPS.

20. Introductory Seminary in American History. Topics in the political and constitutional history of the United States during the administration of President Polk. *Throughout the year; at an hour to be arranged.* Two-fifths credit will be given in this course, but there will be only one hour of class-room attendance. Assistant Professor FISH.

29. Roman Imperial Institutions. A study of the organization and government of the Empire, especially in the second century, A. D. *First semester; Tu., Th., at* 10. (Omitted in 1906-07.) Professor MUNRO.

For Classical Art and Archæology see Latin 22; for Roman Archæelogy, see Latin 28.

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31. Medieval Civilization. Designed to supplement course 1 by a more special study of the intellectual life of the feudal period and a somewhat detailed treatment of the organization of society. *First semester; Tu., Th., at* 10. Professor MUNRO.

33. Constitutional History of the Middle Ages. A comparative study of the governments in Germany and France, especially during the twelfth and thirteenth centuries. (Omitted in 1906-07.) *Second semester; Tu., Th., at* 10. Professor MUNRO.

34. The Later Middle Ages. Intended to supplement course 1 through a study of the modern aspects of the fourteenth and fifteenth centuries in western Europe. Such topics will be discussed as: progress of the towns, revolutionary efforts of the unprivileged classes, growth of monarchical power, rise and decline of medieval representative institutions, decline in political importance of Church and nobility, progress in education, and changes in the art of war. *First semester; Tu., Th., at* 9. Assistant Professor SELLERY.

35. The Renaissance in Italy. A somewhat detailed exposition of economic, political, intellectual, and artistic progress, with a criticism of the importance attached to the influence of antiquity. Prerequisite: course 1. *Second semester; Tu., Th., at* 9. Assistant Professor SELLERY.

36. Age of Louis XIV. A survey of the development of modern Europe, especially during the period of 1661-1721. *Second semester; Tu., Th., at* 9. (Omitted in 1906-07.) Assistant Professor SELLERY.

37. The Old Regime. A presentation of the leading political, social, and intellectual characteristics of pre-Revolutionary Europe as a necessary preliminary to an appreciation of the importance and place of the French Revolution. Courses 37, 38, and 39 are based upon course 2 or its equivalent. *First semester; Tu., Th., at* 12. Alternates with course 45. (Omitted in 1906-07.) Assistant Professor COFFIN.

38. The French Revolutionary and Napoleonic Periods, 1789 to 1815. Emphasizes the transitional character of this period and the modifications of the natural development from the Old Regime to the nineteenth century. Open to those who have had course 2 or its equivalent. *Throughout the year; M., W., F., at* 10. But may be elected by semesters: first

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semester, 1789 to 1799; second semester, 1799 to 1815. Alternates with course 39. Assistant Professor COFFIN.

39. Nineteenth Century Europe, 1815 to 1900. The course is concerned mainly with the development of institutions and of international relations in accordance with plan of courses 37 and 38. Open to those who have had course 2 or its equivalent. *Throughout the year; M., W., F., at* 10. But may be elected by semesters: first semester, 1815 to 1852; second semester, 1852 to 1900. Alternates with course 38. (Omitted in 1906-07.) Assistant Professor COFFIN.

41. Constitutional History of England. A study of the growth of English institutions. Open to juniors and seniors who have had course 5 or 6. *Throughout the year; Tu., Th., at* 12. First semester, Mr. PAHLOW; second semester, Assistant Professor COFFIN.

42. England under the Tudors and Stuarts. A course dealing with constitutional and religious struggles in the sixteenth and seventeenth centuries, economic and social changes, international relations, the development of sea-power, and the founding of the British Empire. *Throughout the year; Tu., Th., at* 12. (Omitted in 1906-07.) Professor DENNIS.

43. The British Empire since 1688. A course dealing with the development of modern English institutions, foreign affairs, the international struggle for colonial and commercial supremacy, and the evolution of imperial politics. Alternates with course 42; both courses are open only to students who have previously studied European history. *Throughout the year; Tu., Th., at* 12. Professor DENNIS.

45. The Development of Prussian Leadership in Germany, 1640 to 1871. Traces the later modern development of Prussian institutions and of the relations of Prussia with the other German states. Open to those who have had course 2 or its equivalent. Alternates with course 37. *First semester; Tu., Th., at* 12. Assistant Professor COFFIN.

46. Introductory Seminary in European History. The course is designed to familiarize the students with the life of the time, with medieval Latin, and with the elements of historical method. The work consists in the translation and study of a medieval chronicle. Open to graduate students and qualified seniors. *Second semester; S., 9 to* 11. Assistant Professor SELLERY.

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50. Methods of History Teaching, with special reference to the work of secondary schools. Open to seniors of suitable preparation. *Throughout the year; W., at* 3. Professors TURNER and MUNRO.

For Graduates

51. Historical Bibliography. An account of the present state of materials for historical research and an examination of the bibliographical tools most essential to the special study of history. *First semester; W., at* 10. (Omitted in 1906-07.) Professor MUNRO.

52. Historical Criticism. An introductory survey of the principal problems of historical method. *First semester; W., at* 10. Alternates with course 53. Professor MUNRO.

53. Palaeography and Diplomatics. (a) Elements of palaeography, with practical exercises in the reading of manuscript facsimiles; (b) elementary exercises in diplomatics. The first part of the course is identical with the first part of course 18 in Latin, and is arranged for the benefit of advanced students of language as well as for students of history. *Second semester; F.*, 9 *to* 11. (Given in 1905-06.) Professor MUNRO.

56. Seminary in Medieval History. In 1906-07 a critical study of the sources for the first crusade. A knowledge of three foreign languages is required. *Th.*, 4 *to* 6. Professor MUNRO.

57. Seminary in Modern History. Topic for 1906-07: French administration under Napoleon I. *First semester; S*, 11 *to* 1. Assistant Professor COFFIN.

58. Seminary in American History. The second administration of Jackson. *Throughout the year; M.*, 2:30 *to* 4; *W.*, 4 *to* 6. Professor TURNER.

61. Europe and Asia. A general survey of the historical relations of eastern and western peoples, to serve as a basis for more detailed study of special phases of the problem of Asia. *First semester; Tu.*, 3 *to* 5. (See courses 62 to 65.) Given in alternate years. (Given in 1906-07.) Professor DENNIS.

Courses 62 to 65 are intended to furnish a general survey of various phases of European interests in Asia and Africa. They constitute a series, and course 62 will not be repeated until course 65 has been given. Students intending to take

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any of these courses are advised to take course 61 first, if possible.

62. British India. This course will deal with the history of India and of the British in India, 1600 to 1900. European rivalries and the gradual establishment of British supremacy in India will be treated. *Second semester; Tu.*, 3 *to* 5. Professor DENNIS.

63. The Eastern Question. This course will deal with the history of the relations of the Ottoman Empire to Europe since the fourteenth century. *First semester; Tu., Th., at* 3. (Omitted in 1906-07.) Professor DENNIS.

64. Europe in the Far East. This course will deal with European exploration of Eastern Asia, the development of European religious and economic interests in the Far East, and will attempt to supply the historic basis for the study of the modern Far Eastern Question. *Second semester; Tu., Th., at* 3. (Omitted in 1906-07.) Professor DENNIS.

65. Europe in Africa. This course will deal with the exploration, colonization, and partition of Africa by European nations. *Second semester; Tu., Th., at* 3. (Omitted in 1906-07.) Professor DENNIS.

70. Historical Conference. One hour a week will be devoted to an informal conference between the instructional staff and graduate students, at which reports will be made on individual investigations and current historical literature will be discussed.

SPECIAL LECTURES

The special lectures included, in the year 1905-06, an address by Professor Andrew C. McLaughlin, of the University of Michigan, on The Social Compact in American History, and a course of lectures on The Federal Convention of 1787, by Professor Max Farrand, of Stanford University.

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POLITICAL ECONOMY

PROFESSOR ELY, PROFESSOR SCOTT, PROFESSOR MEYER,* PROFESSOR COMMONS, PROFESSOR BURCHELL, PROFESSOR ROSS, ASSISTANT PROFESSOR ADAMS, ASSISTANT PROFESSOR TAYLOR, ASSISTANT PROFESSOR YOUNG, MR. LORENZ, MR. GILMAN, MR. THOMPSON, MR. HESS, AND ASSISTANT PROFESSOR HORACK; SPECIAL LECTURERS: PROFESSOR RIPLEY, PROFESSOR EMERY, AND HONORABLE CHARLES P. NEILL

The purpose of the department is to afford superior means for systematic and thorough study in economics and social science. The courses are graded and arranged so as to meet the wants of students in the various stages of their progress, beginning with elementary and proceeding to the most advanced work. They are also designed to meet the needs of different classes of students; as, for instance, those who intend to enter the public service, business, the professions of law, journalism, the ministry, charity work, or teaching, and those who wish to supplement their legal, theological, or other professional studies with courses in economics or social science. Capable students are encouraged to undertake original investigations, and assistance is given them in the prosecution of such work through seminaries and the personal guidance of instructors. In addition to the regular investigative courses, special funds or equivalent provision has been secured for the investigation of the American labor movement, taxation in Wisconsin, and the manufacturing industries of Wisconsin. A means for the publication of the results of investigations of merit and importance is provided in the University Bulletin.

Among the special facilities which Madison affords to students in political economy mention should be made of the various libraries elsewhere described. The library of the University of Wisconsin is especially rich in economic works, while the Wisconsin Historical Library has valuable collections helpful in research and investigation. The materials for the study of history described in connection with the work in the department of History are especially helpful to students working in

*On leave of absence.

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the field of political economy at a time when political economy is giving so much attention to historical investigation. The University library has complete sets of the most important economic and statistical journals, while the State Historical Library has important files of labor periodicals and valuable collections of documents relating to social movements.

The studies offered by the department are elective in all the courses of the University. The graduate work of the department may lead to the master's degree in not less than one year, and to the doctor's degree in not less than three years.

The work of this department has the following distinct but related aims:

1. To provide instruction in economics and sociology for undergraduates in all the courses of the University.
2. To provide advanced and graduate work in the studies falling within its field.
3. To assist and encourage the development of these studies.
4. With the co-operation of other departments, to provide special training courses for various practical pursuits.
5. To supplement the work of the College of Law.

Special attention is here called to the fact that graduates who are pursuing the law course may prepare to take their master's degree at the same time with the degree in law by completing the equivalent of two full studies during one year's work. Graduates of the College of Law are encouraged to devote an additional year to broadening out their training in economics, politics, and jurisprudence.

Especial attention is called to the large number of related courses in philosophy and ethics, and also to the considerable number of journalistic courses in the department of English.

POLITICAL ECONOMY AS AN UNDEGRADUATE MAJOR.—The requirements for an undergraduate major, including the thesis, are not less than twenty-five, and not more than forty, hours, selected in part from the advanced courses.

POLITICAL ECONOMY AS A GRADUATE MAJOR:—Candidates for the degree of Doctor of Philosophy in this department are required to present in their principal subject the equivalent of at least two full graduate courses during two years; in their first subordinate the equivalent of at least one such course during two years; and in their second subordinate the equivalent of a least one such course during one year.

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All such candidates will be expected to be familiar with the history of economic thought, the elements of statistics, and the principles of political economy as presented in advanced modern treatises.

Each candidate must have also made an intensive study of at least one of the following special fields: economic theory; economic history; sociology; labor; public finance; money, banking, and private finance; transportation. In the special field or fields selected, the candidate will be expected to exhibit not only thorough knowledge of the literature, methods of study, and social bearings of the subjects included, but also ability to prosecute research.

Candidates for the master's degree must present in their principal subject the equivalent of at least two full graduate courses during one year, and in their subordinate subject the equivalent of at least one such course.

POLITICAL ECONOMY AS A GRADUATE MINOR:—For a minor, candidates whose major falls in another department may present either the general subjects required of all candidates with a major in economics, or any one of the special groups mentioned above. Candidates for the degree of Doctor of Philosophy may select their major and one of their minors in this department.

Primarily for Undergraduates

1. The Elements of Economic Science. A general survey based upon the study and discussion of a text-book, supplemented by lectures, assigned reading, and exercises. Required of sophomores in the Course in Commerce and of all students beginning the subject of economics. *Repeated each semester; M., W., F., at* 8, 9, *and* 10. Professor ROSS, Assistant Professor YOUNG, Mr. LORENZ, Mr. THOMPSON, and Mr. HESS.
2. Elementary Sociology. Lectures with lantern slides. This course is copiously illustrated in order to give a graphic idea of the variety of social forms, and to show the actual evolution in each of the great departments of social life. It is intended for those who wish a general view of the subject as well as for those who expect to take the more advanced courses in sociology. Attendance and one paper. *One-fifth credit. First semester; Tu., Th., at* 9. Professor ROSS.
3. Elements of Public Finance. An introductory study of the general principles of public expenditure, public revenue,

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public indebtedness, and financial administration. *First semester; M., W., F., at* 9. Assistant Professor ADAMS.

4. Agricultural Economics. An elementary course designed for short-course students in the College of Agriculture. *December and January; Tu., Th., at* 11. Assistant Professor TAYLOR.

5. The Elements of Money and Banking. An introductory course, based on Scott's *Money and Banking*. Repeated each semester. In the first semester the course will be adapted to the needs of those who do not expect to continue the subject in advanced courses. In the second semester the needs of those who expect to specialize in banking and finance will be chiefly consulted. *M., W., F., at* 9. Professor SCOTT and Mr. HESS.

7a. Economic Geography. A general survey of the history and present status of industry and commerce in the principal countries of the world excepting the United States. *First semester; M., W., F., at* 8 *and* 9. Assistant Professor TAYLOR and Mr. THOMPSON.

7b. Economic Geography of the United States. After a brief survey of the development of industry and the expansion of commerce, a special study is made of the production and distribution of the principal articles which enter into American commerce. *Second semester; M., W., F., at* 8. Assistant Professor TAYLOR.

8. Business Administration. The work outlined under the four heads which follow may be taken as a two-hour course for three years or a three-hour course for two years. It is designed to give such training in business operations as will fit young men for all-round usefulness, develop their business tendencies, and prepare them to pursue business with foresight and understanding. Considerable time is devoted to laboratory practice.

8a. Business Forms: commercial paper, bookkeeping, accounting, and auditing. Parallel with the lectures and discussions is conducted the laboratory work, in which the students in cooperation with those in course 8d are promoted through various phases of clerical duties in merchandising, manufacturing, banking, and transportation. *Throughout the year; M., at* 10, *and M., W., or Tu., Th.,* 2 *to* 4. Mr. GILMAN.

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8b. Credit Instruments, funding operations, business organization and systems, factory accounting. Lectures and assigned reading and discussions. May be taken at the same time with 8a or 8c. *Throughout the year; Tu., at* 11. (In 1905-06 this course is also given *M., Tu., W., or Th.*, 2 *to* 4, and arranged to suit juniors in Commerce.) Professor BURCHELL.

8c. Purchasing, marketing, advertising, credit business, and operations, including the practice of Wall Street and other financial centers, mining and transportation accounting. May be taken in connection with 8b or 8d. *Throughout the year; M., at* 11 in 1905-06; thereafter, *Th., at* 11. Professor BURCHELL.

8d. Practice Course. The application of principles taught in courses 8a, 8b, and 8c. In addition to lectures on organization, management, and duties of officers, students organize and manage fictitious business concerns, devise accounting and business systems, and audit the accounts, conducting the same in cooperation with students in 8a. Open to students who have finished courses 8a and 8b, and who have finished or are taking 8c. *Throughout the year; M., at* 11, *and M., W.*, or *Tu., Th.*, 3 *to* 5. Professor BURCHELL and Mr. GILMAN.

8e. Advanced Course. A more detailed and exhaustive study of special topics treated in the general course. Open to students who have taken 8b and are taking 8c. *Throughout the year; W., at* 11, *and another hour to be arranged.* Professor BURCHELL and Mr. GILMAN.

9. Commercial Law. The law of contracts, commercial paper, agency partnership, corporations, sales, public service companies, and insurance treated with reference to the legal rights and liabilities arising in the conduct of business. *Three times a week throughout the year.* Assistant Professor HORACK.

18. Senior Seminaries for Thesis Students. Professor SCOTT, Professor COMMONS, Assistant Professor ADAMS, Assistant Professor TAYLOR, and Assistant Professor YOUNG.

For Undergraduates and Graduates

19. Distribution of Wealth. An historical and comparative study of theories. *Second semester; Tu., Th., at* 10. Professor COMMONS.

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20. Industrial Evolution and Its Problems. A general survey of industrial development, followed by an examination of special problems, such as custom and competition, monopolies and trusts, concentration of wealth, municipal ownership, the inheritance of property, etc. *First semester; Tu., Th., at* 10. Professor ELY and Mr. THOMPSON.

21. History of Economic Thought. The principal topics will be the following: The history of economic thought in classical antiquity; its subsequent development to the time of the mercantilists; the rise and growth of economics as a distinct branch of social science with a brief discussion of existing schools of economic thought. *Second semester; Tu., Th., at* 10. Professor ELY and Mr. THOMPSON.

22. Modern Socialism. A study of the socialist movement during the nineteenth century, and an examination of the theories of those writers who are usually called socialists. *First semester; Tu., Th., at* 9. Mr. LORENZ.

22a. Commercial Crises. An examination of the theory and history of crises. *Second semester; Tu., Th., at* 9. Mr. LORENZ.

22b. Consumption of Wealth. *Second semester; Tu., Th., at* 9. (Omitted in 1906-07.) Mr. LORENZ.

23. Labor Problems. Covers the topics of strikes, trade-unions, employers' associations, arbitration, immigration, child labor, etc. *First semester; M., W., F., at* 11. Assistant Professor ADAMS.

24. Problems in Taxation. Comprehends the more concrete problems of the day: mortgage, railroad, insurance, and double taxation, the personal property and inheritance taxes, etc. *Second semester; Tu., Th., at* 11. Assistant Professor ADAMS.

25. Labor Legislation. Comprehends a study of the labor law of the United States and foreign countries, the practical working of important statutes, and the sphere and function of the labor law in general. *Second semester; M., W., F., at* 10. (Omitted in 1906-07.) Assistant Professor ADAMS.

26. The Elements of Agricultural Economics. This course treats of the economic principles which underlie the prosperity of the farmer, and of all other classes so far as they are dependent upon agriculture. The subject is divided into two parts: In Part I the point of view is that of the farmer,

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and in Part II that of the nation as a whole. *First semester; Tu., Th., at* 12. Assistant Professor TAYLOR.

27. Historical and Comparative Agriculture. This course consists of lectures and assigned readings on the agriculture of the Romans, on the development of agriculture in England and the United States, and on the present status of agriculture in the most important countries, with an attempt to find the explanation of historical changes and geographical differences. *Second semester; Tu., Th., at* 12. Assistant Professor TAYLOR.

28. Agricultural Industries. An investigative course for seniors in the commercial and agricultural courses and for other advanced students. *Throughout the year; Tu., Th., at* 8. Assistant Professor TAYLOR.

29. Manufacturing Industries. A seminar devoted to the study of the history, administration, and social relations of typical manufacturing industries. *Throughout the year; M.,* 7:30 *to* 9:30 P. M. Professor BURCHELL.

30. Elements of Statistics. A course in statistical method. Prerequisite to courses 31 and 32. Two lectures and two hours laboratory work a week, for which a credit of three hours is given. *First semester; W., F., at* 12. *Laboratory hours to be arranged.* Assistant Professor ADAMS.

31. Economic Statistics. Prices, wages, family budgets, labor, financial statistics, etc., will be studied. In this and the following course students are required to do a thorough piece of statistical investigation under the immediate guidance of an instructor. This course is specially recommended to students taking thesis work in economics. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Assistant Professor ADAMS.

32. Social Statistics. Includes a study of vital statistics, suicides, crime, pauperism, etc. *Second semester; Tu., Th., at* 10. *Laboratory hours to be arranged.* Assistant Professor ADAMS.

33. Financial History of the United States. The main lines of our financial development, including our monetary and banking history, will be traced by means of lectures, of which two will be given each week. Readings in the literature of the subject and topics for investigation will be assigned. A third hour each week will be devoted to

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quizzes on the lectures and assigned readings. *First semester; M., W., F., at* 8. Professor SCOTT.

34. Corporation Finance and Securities. A study of the methods of financiering employed in great corporations, with special reference to the various sorts of negotiable securities which they issue, and the circumstances which affect their value. The course includes a study of the stock and produce exchanges, and of their relations to the business of banking. Open to students who have had Money and Banking. It is desirable that this course be also preceded by course 37. *Second semester; Tu., Th., at* 10. Assistant Professor YOUNG.

35. Transportation and Communication. A general introductory course dealing with the more important principles and facts relating to railways, waterways and the express, telephone, telegraph, and postoffice services. *Repeated each semester; Tu., Th., at* 8. Mr. LORENZ.

36. Special Problems in Transportation. An advanced course in which the more important special transportation problems are discussed in detail. Each student pursues an independent line of investigation. Lectures and reports. Open to students who have had course 35 or its equivalent. *Second semester; Tu., Th., at* 9. Assistant Professor YOUNG.

37. Corporation Economics. The historical development of the corporation as a form of business organization, with special reference to the United States. Pools, trusts, and monopolies. Present and proposed regulation. *First semester; Tu., Th., at* 8. Assistant Professor YOUNG.

38a. The Economics of Insurance. The theory of insurance; the development of insurance companies; the various systems of insurance; public control of insurance companies; insurance finance; and related subjects. *First semester; Tu., Th., at* 11. Assistant Professor YOUNG.

38b. Life Insurance. A study of the various forms of life insurance, including an elementary survey of life insurance mathematics. Open to students who have had course 38a or its equivalent. *Second semester; Tu., Th., at* 11. Assistant Professor YOUNG.

39. Social Psychology. The laws of mob-mind, "craze", "fad", fashion, conventionality, custom, "standard of comfort", "spirit of the age", public opinion, etc. Studies of inven-

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tion, innovation, leadership, the influence of great men. *First semester; M., W., F., at* 11. Professor Ross.

40. General Sociology. Lectures with text. A systematic survey of the field of social relations with the view of establishing principles and laws. *Second semester; M., W., F., at* 11. Professor Ross.

41. Charities and Corrections. A study, first, of the dependent class, with special reference to slum conditions; second, of the defective class, and the institutional treatment of this class; third, of the delinquent class, causes and prevention of crime, prison management and discipline. Reformatories and other public institutions will be visited. *Second semester; M., W., F., at* 9. (Omitted in 1906-07.) Professor Ross.

Primarily for Graduates

50. Seminary in Money and Banking. For the year 1906-07 the subject will be the history of prices, currency, and banking in the United States in the period 1860-79. *Throughout the year; Th.,* 4 *to* 5:30. Professor Scott.

52. The Distribution of Wealth. Part I. The fundamental institutions in the existing social order and their relation to the present distribution of wealth. The principal topics discussed are: private property, contract and its conditions, vested interests, custom, competition, monopoly, authority, and the caritative principle. *Throughout the year; Tu., Th.,* 2:30 *to* 4:00. Professor Ely.

53. Distribution of Wealth. Part II. The shares of the various factors in distribution, viz.: rent, interest, profits, and wages. May be taken by those who have not had Part I, course 52. *Throughout the year; Tu., Th.,* 2:30 *to* 4:00. (Omitted in 1906-07.) Professor Ely.

54. Public Finance. This course deals first with the nature of public finance as a science and with its history, with the devolpment and working of the public economy, and then proceeds to a discussion of public expenditures and a brief examination of public revenues. *Second semester; Tu., Th.,* 2:30 *to* 4:00. (Omitted in 1906-07.) Professor Ely.

55. American Public Finance. Part I. The financial history of the United States. A critical and historical discussion of the finances of the federal government. *Second semester;*

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Tu.; Th., 2:30 *to* 4:00. (Omitted in 1906-07.) Assistant Professor ADAMS.

56. American Public Finance. Part II. An historical and critical account of the finances of the American commonwealths and local political units. *Second semester; Tu., Th.*, 2:30 *to* 4:00. (Omitted in 1906-07.) Assistant Professor ADAMS.

57. Principles of Taxation. A discussion of the history, principles, and problems of American taxation. Designed to supplement course 54; open only to students who have had an introductory course in Public Finance. *First semester; M., W., F., at* 10. Assistant Professor ADAMS.

58. Monopolies and Trusts. Based on Ely's *Monopolies and Trusts*, and consisting of lectures and discussions supplementary to it. Professor ELY.

60. Seminary on Cities. Growth, location, structure, and economic basis. Comparison of city with country in respect to sex, age, race, birth rate, longevity, morbidity, marriage, divorce, pauperism, criminality, vice, education, moral character, intellectual traits, and political leanings. *First semester; Th.*, 7:15 *to* 9:15 P. M. (Omitted in 1906-07.) Professor ROSS.

61. Seminary on Bad Government. The nature, extent, varieties, causes, and consequences of political corruption and inefficiency studied from evidence of recent date. Partisanship, the machine, the boss, patronage, vote buying, election frauds, "graft", "boodle", and the "business interests". *Second semester; Th.*, 7:15 *to* 9:15 P. M. Professor ROSS.

63. Seminary on the Dynamics of Population. The factors—economic, military, social, political, legal, and religious—which influence the quantity and quality of population. Natural, social, and artificial selection among men. *Second semester; Th.*, 7:15 *to* 9:15 P. M. (Omitted in 1906-07.) Professor ROSS.

64. Labor and Industrial History. The development of the modern labor movement, including political, legislative, and judicial changes. *Second semester; M., W.*, 2:30 *to* 4:00. Professor COMMONS.

65. Research Course in Labor and Industry, 1860-79. *Second semester; Tu.*, 4 *to* 6. Professor COMMONS.

70. Economic Seminary. Designed for graduate students who wish to carry on special investigations under the guidance

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which the department affords. A subordinate feature of the seminary work is the review of recent books and important articles published in the periodicals. *Throughout the year; Tu.*, 7:30 *to* 9:30 P. M. Professor ELY, Professor COMMONS, Professor ROSS, Assistant Professor ADAMS, Assistant Professor YOUNG, Assistant Professor TAYLOR, and Mr. LORENZ.

SPECIAL LECTURES

In addition to the regular courses of class instruction and lectures described above, special lectures are given each year by scholars and public men from without the University. The nonresident lecturers last year were Dr. Albert Ernest Jenks, Chief of the Ethnological Survey, Philippine Islands, on the Ethnology of the Philippines; Professor John H. Gray, of Northwestern University, on Corporations and Labor Problems; Professor Edward D. Jones of the University of Michigan, and Professor Maurice H. Robinson, of the University of Illinois, on Industrial Combinations and Railways. The special lecturers for the current year include Professor William Z. Ripley, of Harvard University, on Transportation; Professor Henry C. Emery, of Yale University, on Labor Problems; and Honorable Charles P. Neill, U. S. Commissioner of Labor, on International Trade.

POLITICAL SCIENCE

PROFESSOR PARKINSON, PROFESSOR REINSCH, ASSISTANT PROFESSOR SPARLING, DR. M'CARTHY, AND DR. M'CONACHIE

The undergraduate courses are open for election in the sophomore and junior years. As a rule, at least five semester hours of this work should be done before electing any of the advanced courses. The courses for undergraduates and graduates are open for election by juniors, seniors, and graduates. Sophomores of advanced standing may make arrangements to take some of these courses (12, 15, and 20). Some of the graduate courses (14, 19, 32, 35, 36) are open to seniors presenting special qualifications in the way of preparatory work. The requirement for an undergraduate major in Political Science, in addition to the thesis, is twenty-one semester hours as a minimum.

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Primarily for Undergraduates

1. Elements of Political Science. A general survey of the field of political science. *First semester; M., W., F., at* 8. Assistant Professor SPARLING.
2. Elementary Law. The nature and sources of law, and the methods of its application. *First semester; M., W., F., at* 11. Dr. MCCONACHIE.
3. Elements of Administration. The theory of administration, and a survey of the administrative systems of the chief states of modern Europe and of the United States. *First semester; Tu., Th.,* at 8. Assistant Professor SPARLING.
4. The Constitution of the United States. An outline course of lectures designed primarily for those who cannot give more time to this subject, but which may be taken with profit in connection with any of the longer courses in Constitutional Law. *Second semester; F., at* 10. Professor PARKINSON.
6. Administrative Problems. A survey of the primary administrative activities of the chief states of Europe and the United States. *Second semester; Tu., Th., at* 8. Assistant Professor SPARLING.
7. Government and Politics in the United States. A general study of the American system of government in its local, state, and federal organs and their relations to each other, as well as of the methods of political action. *Second semester; M., W., F., at* 8. Professor REINSCH and Assistants.

For Undergraduates and Graduates

9. Roman Law. In 1905-06: The Institutes of Roman Law. In 1906-07: The History of Roman Law. *First semester; M., W., at* 12. Dr. MCCONACHIE.
10. History of English and American Law. A study of the development of legal institutions in connection with political and social history. *Second semester; M., W., at* 11. (Omitted in 1907.) Professor REINSCH.
11. Jurisprudence. Analysis of the main concepts of the science of law, on the basis of the juristic classics. Open to students who have had an elementary course in law. *Second semester; Tu., Th., at* 12. Dr. MCCONACHIE.
12. English and American Constitutional Law. Lectures upon

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the development of the English constitution from the time of Magna Charta, with emphasis upon its unwritten growth since the Revolution of 1688. These lectures are followed by a study of the constitution of the United States in the light of the highest judicial interpretation. *Throughout the year; M., W., F., at* 9. Professor PARKINSON.

13. American Constitutional Law. Designed to follow, or at least to supplement course 12. A closer study is here made of the more important parts of the constitution, with emphasis upon the amendments. An examination of leading cases is made prominent. Open to graduates and to other advanced students who have had course 12 or its equivalent. *Throughout the year; Tu., Th., at* 9. Professor PARKINSON.

15. Municipal Government in Europe and the United States. *Second semester; M., W., at* 8. Assistant Professor SPARLING.

16. State Administration. A study of the local and state administrative systems of the United States. *First semester; M., W., F., at* 9. Assistant Professor SPARLING.

17. Federal Administration. A study of the organization and functions of the different branches of our federal service. *Second semester; M., W., F., at* 9. Assistant Professor SPARLING.

18. International Law. An inquiry into the nature, sources, and sanctions of international law, and an outline study of its growth, with emphasis upon its modern development through the expansion of commerce and the influence of Christian civilization. *First semester; M., W., F., at* 10. Professor PARKINSON.

20. Oriental Politics and Civilization. In 1907, the Oriental diplomatic situation will be studied, as well as the political and social systems of the principal Oriental states. *Second semester; M., W., F., at* 10. In connection with this course a series of public lectures on problems of international politics will be given. Professor REINSCH.

21. Colonial Politics. A study of the principal systems of colonial government, and of the methods of colonial administration, especially as affecting finance, commerce, agricultural and industrial development, labor, and education in the

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dependencies. *First semester; M., W., F., at* 10. Professor REINSCH.

22. Party Government. Special attention will be given to party organization and the methods of legislative bodies. *First semester; M., W., at* 11. Professor REINSCH.

23. Consular Service. A study of the modern consular systems and methods, with special emphasis upon the American system. *First semester; Tu., Th., at* 9. Assistant Professor SPARLING.

25. The Law of the Press. The law of copyright, literary property, libel, privileged publications, and other topics relating to the publication of books and newspapers. Designed especially for students preparing for journalism and the law. *Second semester; M., at* 3. Dr. MCCONACHIE.

26. The Theory and Practice of Legislation. A study of the methods of procedure of legislative bodies, and the preparation of the subject matter and form of bills. *Throughout the year; M., W., F., at* 12. Dr. MCCARTHY.

Primarily for Graduates

14. Seminary in Constitutional Law. A comparative study of the constitutions of some of the leading states of the world in their more important features, giving special emphasis to the present trend in constitution making. Open to graduates, and to seniors who have had courses 12 and 13 or their equivalent. *Second semester; M., W., at* 10. Professor PARKINSON.

19. Seminary in International Law. With emphasis upon diplomacy, treaties, the rights and obligations of neutrals, and the method of settling international disputes without resort to war. Open to graduates, and to others who have had course 18. *Second semester; M., W., at* 10. (Omitted in 1907.) Professor PARKINSON.

32. Seminary in Comparative Legislation. This course is open to undergraduates who have had course 26. *Throughout the year; F.,* 4 *to* 6. Dr. MCCARTHY.

35. History of Political Thought. The development of political philosophy from the Greeks to the present time, and its connection with political history. May be taken by seniors. *First semester; M., W., F., at* 11. (Omitted in 1905-06.) Professor REINSCH.

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36. Philosophy of the State. A critical study of contemporary political thought and terminology. *First semester; Tu.* 4-*to* 6. This course may be elected by seniors of suitable preparation. Professor REINSCH.

37. Juristic Classics. In 1906: The Institutes of Gaius, first two books; reading and commentary. *Second semester; F., at* 11. Dr. MCCONACHIE.

39. Seminary in Administration. Some important phases of state administration will be studied. *Throughout the year; Tu.*, 7:30 *to* 9. Assistant Professor SPARLING.

40. Seminary in Politics. For 1906-07: Diplomacy and treaty relations in the Orient. *Throughout the year; W.*, 7:30 *to* 9:30 P. M. Professor REINSCH.

For groups of studies in the departments of History, Political Economy, and Political Science, arranged as special training courses in practical sociology, statistics, public service, and journalism, see the special announcement of the above departments, which may be had upon application to the Registrar.

GREEK

PROFESSOR SMITH, PROFESSOR KERR, ASSISTANT PROFESSOR LAIRD, AND MR. FILBEY

A course in Elementary Greek is offered for the benefit of students who have not taken the preparatory work in the high school. It is open to all freshmen, whatever group of studies they may have offered for admission, and may also be taken in any other year, counting ten hours towards the fulfillment of the language requirement of sixteen or twenty-four hours, or as an elective in connection with any line of work. On completion of course A, a good student may, on the recommendation of the instructor, be admitted to course 1, thus gaining the opportunity of advancing more rapidly than if the second year were spent on course B. An exceptionally strong student, who has taken course A in his freshman year, and desires then to make Greek his major, may in his sophomore year take courses 1 and 2, and thereby be enabled to carry on advanced work in his junior and senior years.

The object of the graduate courses in Greek is to secure, on the part of advanced students, wide reading in Greek authors, acquaintance with the latest results of philological investigation

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through constant reading of critical journals, the forming of habits and learning of methods of research. In pursuance of the last named purpose especially, the Greek Seminary meets once a week to hear and to discuss carefully prepared papers, the members leading in turn.

Primarily for Undergraduates

A. Elementary Greek. White's *Beginner's Greek Book*, Xenophon's *Anabasis*. *Throughout the year; M., Tu., W., Th., F., at* 12. Assistant Professor LAIRD.

B. Xenophon's *Anabasis* III-IV, Homer's *Odyssey* I-IV, Greek Composition. *Throughout the year; M., W., F., at* 10. Mr. FILBEY.

For students who have had one year of preparatory work.

1. Herodotus VIII, Homer's *Odyssey* V-XII, *Lysias*, Grammar and Composition. *Throughout the year; M., Tu., W., F., at* 8. Assistant Professor LAIRD.

For students who have had two years of preparatory work.

2a. The *Philippics* of Demosthenes, the *Bacchae* of Euripides, Goodwin's *Moods and Tenses*. *First semester; M., W., F., at* 10. Professor KERR.

Plato's *Apology* and *Crito*, Thucydides VII, Jebb's *Primer of Greek Literature*. *Second semester; M., W., F., at* 10. Professor SMITH.

2b. Herodotus VII, or selected dialogues of Lucian, and Euripides, (two plays). *Throughout the year; M., F., at* 11. Professor SMITH and Professor KERR.

For those who have had course 1, or whose preparatory work has been particularly good.

3. Greek Prose Composition. *Throughout the year; W., at* 11. Professor SMITH, or Assistant Professor LAIRD.

This course will be required of those who expect to get recommendations to teach.

4. Easy Greek for Sight Reading. Open to those who have completed course 1. *One hour a week.* Professor SMITH.

For Undergraduates and Graduates

5a. Greek Lyric Poets. Study of meters. *First semester; M., W., F., at* 9. Professor SMITH.

5b. Thucydides; Demosthenes. *Second semester; M., W., F., at* 9. (Omitted in 1906-07.) Professor SMITH.

6. Greek Dramatic Poets. *First semester*, Aeschylus (two

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plays), Sophocles (two plays). Study of meters. *Second semester*, Aristophanes (two plays), Aristotle's Poetics, discussion of the Greek drama. *M., W., F., at* 9. Professor SMITH.

7. Greek Orators. *Throughout the year; Tu., Th., at* 9. (Omitted in 1906-07.) Assistant Professor LAIRD.

8. Plato. The Republic. Books I, II, III, and IV, with selections from other parts of the dialogue. This course is intended as an introduction to the study of Greek philosophy. *Throughout the year; Tu., Th., at* 9. Professor KERR.

10. Advanced Greek Composition. *First semester; once a week*, Professor SMITH or Assistant Professor LAIRD.

11. Modern Greek. A study of the changes in form and structure which the language has undergone since the classical period. *Throughout the year; Tu., Th., at* 9. (Omitted in 1906-07.) Professor KERR.

12. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Throughout the year; Tu., Th., at* 11. (See Latin 12.) Assistant Professor SHOWERMAN.

15. Classical Archaeology. The history and appreciation of Greek sculpture, architecture, and painting. A course introductory to the study of art. Assistant Professor SHOWERMAN. (See Latin 22.)

16. Greek Religion. (See Latin 27.)

Primarily for Graduates

20. Thucydides. The whole of the author is read privately by the members of the class. *Throughout the year; S.,* 9 *to* 11. (Omitted in 1906-07.) Professor SMITH.

21. Greek Drama. Sophocles. The whole author is read privately by the members of the class. As supplementary to this course the scenic antiquities will be studied. *Throughout the year; S.,* 9 *to* 11. Professor SMITH.

22. Lyric Poetry. Especial attention is given to Pindar, the whole being read privately. *Throughout the year; S.,* 9 *to* 11. (Omitted in 1906-07.) Professor SMITH.

23. Greek Dialects. A study of dialect sounds and forms based on the inscriptions. Solmsen's *Inscriptions Graecae* will in the main be followed. *Two hours a week for a portion*

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of the year, as part of the regular seminary work. Assistant Professor LAIRD.

24. Greek Literature. Lectures, with selections from Greek authors, read by the class: Lyric Poetry. *First semester; twice a week.* Drama and History. *Second semester; twice a week.* (Omitted in 1906-07.) Professor SMITH.

25. Greek Orators. Antiphon, Andocides, Lysias, and Isaeus. The whole of these authors will be read by the class. *Throughout the year; W.*, 4:30 *to* 6. (Omitted in 1906-07.) Assistant Profesor LAIRD.

26. Herodotus. The whole of the author is read privately by the members of the class. *Throughout the year; M.*, 4 *to* 6. (Omitted in 1906-07.) Assistant Professor LAIRD.

30. Greek Grammar. History of the sounds and forms. *Throughout the year; Tu., Th., at* 5. (Omitted in 1906-07.) Assistant Professor LAIRD.

31. Greek Syntax. Lectures on the development of Attic usage, with particular reference to the cases and modes. *Th., at* 8. (Omitted in 1906-07.) Assistant Professor LAIRD.

33. Journal Club. Reports on and discussion of current philological literature. *One hour a week throughout the year.* Professor SMITH and Assistant Professor LAIRD.

SANSKRIT

ASSISTANT PROFESSOR LAIRD

34. Elementary Sanskrit. *Throughout the year; M., W., at* 10.

35. Advanced Sanskrit. Selections from the Rig-Veda. *Throughout the year; W., at* 11.

LATIN

PROFESSOR SLAUGHTER, ASSISTANT PROFESSOR FISKE,* ASSISTANT PROFESSOR HADZSITS, ASSISTANT PROFESSOR LAIRD, ASSISTANT PROFESSOR SHOWERMAN, DR. ALLEN, AND MR. LEE

The courses in Latin are divided into three groups, as follows,

I. Courses A to 5 are intended for undergraduates in the early years of the college course. They form an introduction to the

*On leave of absence for the academic year 1905-06.

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more advanced courses, and furnish, for those who do not continue the subject beyond the second year in college, an acquaintance with the best specimens of Latin prose and verse. They may not be counted for the master's degree. Course A is intended for students whose preparation has for any reason been less than the amount nominally required for entrance to the University. It counts towards the bachelor's degree, and is accepted in fulfillment of the language required in the University. It will not be accepted as part of a Latin major. Course 1 must precede all other courses except A. Course 2 is recommended to students who intend to make Latin a major, and should be taken in the first year along with course 1.

II. Courses 8 to 22 are open to students who have satisfactorily completed courses 1 and 3, or an equivalent, in group I, and may be counted towards the master's degree.

III. Courses 25 to 33 are primarily for graduate students, and are ordinarily not open to undergraduates, or those who have completed less than twenty-six semester hours of undergraduate Latin.

Latin Major

The requirements for an undergraduate major in Latin are, in addition to the thesis, twenty-two semester hours as a minimum. At least ten semester hours must be chosen from group II, but no specific requirement of courses is made.

Primarily for Undergraduates

A. Cicero and Vergil. Four orations of Cicero and six books of Vergil's *Aeneid* will be read in class. Some attention will be given to writing Latin. *Throughout the year; M., Tu., W., Th., F., at* 8. Mr. LEE.

1. Livy, Cicero, and Terence. Livy, Books I and XXI; Cicero, *De Senectute*, and Terence, *Phormio* and *Andria*, will be read. The class will meet in four sections. *Throughout the year; M., W., F., at* 8, 10, *and* 3, *and Tu., Th., S., at* 10. Assistant Professors SHOWERMAN and HADZSITS, Dr. ALLEN, and Mr. BRANDT.

2. Prose Composition and the reading of easy prose authors. The translation from Latin requires no preparation, and is intended to supplement the work in writing Latin.

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Throughout the year; Tu., Th., at 8, 10, *and* 3. Assistant Professors SHOWERMAN and HADZSITS, and Dr. ALLEN.

3. Horace. Selections from odes, satires, and epistles of Horace. *Throughout the year; M., W., F., at* 9. Professor SLAUGHTER and Assistant Professor SHOWERMAN.

4. Advanced Prose Composition. This course must be preceded by course 2. *Throughout the year; Th., at* 3. *Two hours credit.* Assistant Professor HADZSITS.

5. Catullus, Ovid, Pliny, and Martial. This course is intended to supplement course 3, and should be taken with or after it. *Throughout the year; Tu., Th., at* 9. Dr. ALLEN.

For Undergraduates and Graduates

8. Cicero's Letters and Orations. A reading course, with lectures and assigned topics. Special attention will be paid to the life and personality of Cicero. *Second semester; M., W., F., at* 8. Assistant Professor SHOWERMAN.

9. Plautus, Terence, and Seneca. This course is intended to give, by reading and supplementary lectures and topics, a general survey of the Roman drama. *Throughout the year; Tu., Th., at* 8. (Omitted in 1906-07.) Assistant Professor SHOWERMAN.

10. Lucretius. The first, third, and fifth books of the *De Rerum Natura*, and selections from the remaining books are read in class. Lectures and assigned reading on topics connected with the course. *Second semester; M., W., F., at* 10. Professor SLAUGHTER.

11. Vergil. The last six books of the *Aeneid* are read in class, with selections from Vergil's other works. Lectures and assigned reading on topics conected with the course. *First semester; M. W., F., at* 10. Professor SLAUGHTER.

12. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Throughout the year; Tu., Th., at* 11. Assistant Professor SHOWERMAN.

13. Literary Criticism. During the first semester, early Latin writers of epic and drama are studied in conection with the criticisms passed upon them by later writers. Selections from the literary criticism of Cicero, Horace, and Quintilian are read during the second semester. Topics are

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required. *Throughout the year; W., F., at* 9. (Omitted in 1906-07.) Dr. ALLEN.

14. Cicero and Seneca. Selections from the philosophical works of Cicero and Seneca are read in class. This course is intended to give, by reading and supplementary lectures and topics, an account of the contribution of the Romans to the history of philosophy. *Second semester; M., W., F., at* 9. Dr. ALLEN.

21. Tibullus, Propertius, and Ovid. Selections will be chosen largely to illustrate mythology. Gayley's *Classic Myths* will be used in connection with the reading. *First semester; M., W., F., at* 9. Dr. ALLEN.

15. Latin Composition. This course is intended for seniors and graduate students. It must be preceded by course 4, or its equivalent. *Throughout the year; Tu., at* 3. Profesor SLAUGHTER.

16. Teachers' Course. A course on the methods and materials used in teaching Latin, with special reference to the work in secondary schools. Lectures, reports, discussions, and practice teaching. Open to juniors and seniors who have had not less than twenty unit-hours of Latin. *Throughout the year; Tu., at* 3. (Omitted in 1906-07.) Professor SLAUGHTER.

17. Latin Literature. A general survey of Latin literature from the earliest period to the reign of Trajan, by means of lectures and required reading in the Latin authors, and in English translations. *Throughout the year; Tu., Th., at* 10. Assistant Professor FISKE.

18. Roman Satire. A reading course of selections from the works of Ennius, Lucilius, Varro, Horace, Seneca, Persius, Petronius, and Juvenal. Lectures are given on the origin and development of Roman satire. Topics are required. *Throughout the year; Tu., Th., at* 10. Assistant Professor FISKE.

19. Roman Historians to Tacitus. A reading course of selections from the Annalists, Cicero, Cæsar, Nepos, Sallust, Livy, and Tacitus. Lectures are given and topics are required. *Throughout the year; M., W., F., at* 10. (Omitted in 1906-07.) Professor SLAUGHTER.

20. Literature of the Late Empire. A course in pagan and Christian authors, with lectures on the religion and literature

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of the period. The *Cupido et Psyche* of Apuleius and the *Octavius* of Minucius Felix will be read. *First semester; M., W., F., at* 8. Assistant Professor SHOWERMAN.

22. Classical Archaeology. (See Greek 15.) The history and appreciation of Greek sculpture, architecture, and painting. A course introductory to the study of art, consisting of lectures illustrated by means of the stereopticon. A knowledge of Greek and Latin is not necessary. Text-books and topics. *First semester; Tu., Th., at* 11. (Omitted in 1906-07.) Assistant Professor SHOWERMAN.

For Graduates

25. Latin Grammar. Lectures on the sounds and forms of the Latin language. Open to graduates and properly qualified seniors. *Second semester; Tu., Th., at* 8. Assistant Professor LAIRD.

26. Latin Syntax. Lectures on Latin syntax, illustrative of the historical method. *First semester; Tu., Th., at* 8. Assistant Professor LAIRD.

27. Religion of the Greeks and Romans. Lectures, studies, and reports on mythology, rituals, and religious institutions of the Greeks and Romans. *Throughout the year; M., W., at* 9. Assistant Professor FISKE.

28. Roman Archaeology. Lectures on the remains of ancient Rome, illustrated by lantern slides. *Second semester; Tu., Th., at* 11. (Omitted in 1906-07.) Assistant Professor SHOWERMAN.

29. Epigraphy and Palaeography. Lectures. Readings of inscriptions and facsimilies of Latin manuscripts. *Throughout the year; Tu.,* 4 *to* 6. (Omitted in 1906-07.) Professor SLAUGHTER.

30. Latin Literature. Lectures and assigned readings, with a minute examination of the authors read. A two years' course. The period of the Republic is studied the first year. The period of the Empire is studied the second year. *Throughout the year; Tu., Th., at* 11. Dr. ALLEN.

33. Latin Seminary. The work of the Seminary varies from year to year according to the author or subject under discussion. In 1904-05, a critical and exegetical study of the Odes of Horace was made. The whole of the author was

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read privately by the members of the Seminary, and reports, topics, and lectures formed a part of the year's work. In 1905-06, the *Monumentum Ancyranum* formed the basis of the work, and a particular study was made of the early Empire. In 1906-07, Plautus will be the author studied, and the work will center about the *Miles Gloriosus*. The members of the Seminary will be expected to read all of Plautus and Terence. *Throughout the year; W.*, 2:30 *to* 4:30. Professor SLAUGHTER.

HEBREW AND HELLENISTIC GREEK

PROFESSOR WILLIAMS, DR. KELLEY, MR. KNIGHT, AND DR. BRESLICH

The various language and literary courses given below are open as electives to students in any department of the University who are prepared to carry them on with profit. The purposes for which they are pursued are (a) as a means to liberal culture; (b) as furnishing necessary data to a study of phonetics, philosophy of language, and comparative philology; (c) as an important department of history, archaeology, and art; and (d) as preparatory to studies in ethics and theology.

As may be seen from the following, the department also offers courses in Arabic, Assyrian, Syriac, and Aramaic.

Primarily for Undergraduates

1. The General Principles of the Hebrew Language. Reading of selections from Genesis. *Four times a week throughout the year.* Professor WILLIAMS and Dr. BRESLICH.
2. This course is the same as course 1, but begins in the second semester of each year as a two-hour study, and continues as a two-hour study during the first semester of the following year. Dr BRESLICH.
3. Historical Hebrew. The books of Samuel, with a review of the verb. *Twice a week; first semester.* Dr. KELLEY.
4. The Book of Deuteronomy. A general review of etymology. *Twice a week; second semester.* Dr. KELLY.
7. Exercises in Writing Hebrew. *Once a week throughout the year.* Professor WILLIAMS.
16. Selected chapters from the Gospels, and the general princi-

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ples of Hellenistic Greek. For students who have not studied classical Greek. *Four times a week throughout the year.* Mr. KNIGHT.

17. This course is the same as course 16, but begins as a two-hour study in the second semester of each year, and continues as a two-hour study during the first semester of the following year. Mr. KNIGHT.

18. Matthew and Mark and a study of the etymology of Hellenistic Greek. *Twice a week throughout the year.* Mr. KNIGHT.

19. Luke and Acts. Historical study with careful attention to Hellenistic Greek syntax. *Twice a week throughout the year.* Mr. KNIGHT.

23. History of the Hebrew People from the Settlement in Canaan to the Division of the Kingdom. A sketch of the literature of the period. *Once a week throughout the year.* Professor WILLIAMS.

24. History of the Hebrew People from the Division of the Kingdom to the Fall of Jerusalem. The literature of the Assyrian period. *Once a week throughout the year.* Dr KELLEY.

25. History of the Jewish People during the Maccabean and Roman periods. *Once a week; second semester.* Professor WILLIAMS.

26. Historical Geography of Palestine; Hebrew Archaeology; Recent Discoveries. *Once a week throughout the year.* Professor WILLIAMS.

For Undergraduates and Graduates

5. The Minor Prophets. Critical translation of the Hebrew text with close attention to vocabularies and syntax. *Twice a week throughout the year.* Dr. KELLY.

6. The Book of Job. A study of the form and characteristics of Hebrew poetry. *Twice a week throughout the year.* Professor WILLIAMS.

8. Hebrew Syntax, with selected passages for reading. *Twice a week throughout the year.* Dr. KELLY.

27. The Psalms: Books I and II, and a study of the form and characteristics of Hebrew poetry. *Twice a week throughout the year.* Professor WILLIAMS.

Of courses 5, 6, and 27 only two may be taken in any one year.

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Primarily for Graduates

9. Advanced Hebrew Syntax. *Twice a week; first semester.* Dr. KELLY.
10. Advanced Hebrew Etymology. *Twice a week; second semester.* Dr. KELLY.

Courses 9 and 10 will be given in alternate years.

11. Hebrew Seminary. In successive years Isaiah I.-XXXIX., XL.-LXVI., and the third and fourth books of the Psalms will form the center of the work. *Once a week (two hours) throughout the year.* Professor WILLIAMS and Dr. KELLY.
12. Arabic. *First semester*: Easy reading and principles of the language. *Second semester*: Reading of selections and some of the shorter suras of the Quran. *Twice a week.* Dr. KELLY.
13. Advanced Arabic: The Quran. *Once a week throughout the year.* Dr. KELLY.
14. Elementary Assyrian. A study of selected texts and of (a) the grammatical principles of the language, and (b) the use of the material for lexicographical purposes. *Twice a week throughout the year.* Dr. KELLY.
15. Biblical Aramaic, ten weeks; Syriac, the remainder of the year. *Twice a week.* Alternates with 14. Dr. KELLY.
20. John. Critical study and textual criticism. *Twice a week throughout the year.* Professor WILLIAMS.
21. Hellenistic Greek Seminary. In successive years the Epistle of Paul to the Romans, the second gospel, and the fourth gospel will form the center of the work. *Once a week (two hours) throughout the year.* Mr. KNIGHT.
22. Advanced Hellenistic Greek Grammar. *Twice a week throughout the year.* Professor WILLIAMS.

SLAVIC PHILOLOGY

DR. PROKOSCH

These courses intend to furnish the students with (1) a general insight into the historical and comparative grammar of the Balto-Slavic languages; (2) an acquaintance with Slavic folklore,

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customs, etc.; and (3) a reading knowledge of Russian, this being the most important of the modern Slavic languages.

1. Old Bulgarian, from an historical point of view. Reading of the gospels. *First semester; twice a week.*
2. Lithuanian. Comparative grammar, and reading of Lithuanian fairy tales. *Second semester; twice a week.*
3. Russian. Introductory course. *First semester; twice a week.* (Omitted in 1906-07.)
4. Advanced Russian. Reading of easy prose. *Second semester; twice a week.* (Omitted in 1906-07.)

ROMANCE LANGUAGES

PROFESSOR OWEN, PROFESSOR SMITH, ASSOCIATE PROFESSOR GIESE, ASSISTANT PROFESSOR GAY, MR. PATZER, MR. SEYMOUR, MR. SCHLATTER, MR. MACNISH*, MR. BOARDMAN, AND MR. COOL

French courses numbered below 10 are for students who have had no French, or have had less than two years in the high school. Students with only one year of high school French or its equivalent may be allowed to enter course 5.

Courses beginning with 10 and numbered below 20 are for students who have had one year of college French, or two years of high school French. Students who have had more than two years of high school French should consult with the department before entering any French course.

Courses beginning with 20 and numbered below 40 are for students who have had at least two years of college French, while courses numbered 40 and above are primarily for graduates.

Courses in all the Romance languages marked C and E are intended for Commerce and Engineering students. Similar courses are nearly always given for students of the College of Letters and Science, who will not be allowed to take Commerce and Engineering courses except by special permission of the instructor.

FRENCH

For Undergraduates

1. Elementary French. Grammar, reading, composition, and oral exercises. Fraser and Squair's *French Grammar.* The

*Resigned, February 15, 1906.

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reading will be done in simple modern French prose. Considerable attention will be paid to pronunciation. *Four hours a week throughout the year.* Nine sections. Assistant Professor GAY, Mr. PATZER, Mr. MACNISH, Mr. SCHLATTER, Mr. BOARDMAN, and Mr. COOL.

2. Elementary French. Special course for students who have had at least four years of Latin or German. *Tu., W., Th., F., at* 8. Assistant Professor GAY.

3. Elementary French. Begins the second semester and covers the work done in the first semester of course 1. Students taking this course may continue their work the following year with course 4. *M., W., F., S., at* 11. Mr. BOARDMAN.

4. Elementary French. This course completes the work of French 1 at the end of the first semester, and during the second semester covers the work of the first half of second-year French. Intended for students who have taken Elementary French in the Summer Session, or course 3 above, and for those who enter with one year of high school French. *Tu., W., Th., F., at* 11. Mr. SCHLATTER.

5E. Elementary French for Engineers. In the first semester the work will be for the most part the same as that in course 1, except that more attention will be paid to reading. During the second semester Herdler's *Scientific Reader* and other works of similar character will be introduced. *Tu., W., Th., F., at* 8, Mr. BOARDMAN. *M., Tu., W., Th., at* 9, Mr. MACNISH. *Tu., W., Th., F., at* 2, Mr. MACNISH.

6C. Elementary French for students in Commerce. Reading, composition, and oral exercises. Chardenal's *Complete French Course.* Reading of easy prose. *Tu., W., Th., F., at* 9. Mr. PATZER.

10. Second-year French. Reading and grammar. The following texts are intended to represent the character of the reading, rather than the actual works that may be used in each section: Sand's *La Mare au Diable;* Merimee's *Colomba;* Daudet's Stories; Lamartine's *Jeanne d'Arc;* Renan's *Ma Soeur Henriette;* Augier and Sandeau's *Le Gendre de M. Poirier;* Moliere's *L'Avare. Throughout the year; M., W., F., at* 9. Professor SMITH. *M., W., F., at* 10, Assistant Professor GAY.

11. Special second-year French. Reading and syntax. Reading in class of parts of *Cinq Mars, Ursule Mirouet;* reading in-

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dependently for examination of the *Histoire de Charles XII.*, or other easy French to be assigned. Students in this course are advised to take also French 14 or 15. *M., W., F., at* 11. Professor OWEN.

12. Lectures on Thought and Language. *First semester. M., at* 11. At present embodied in course 11. Professor OWEN.

13. Special second-year French. Like course 10, but designed to give a greater amount of historical reading. *M., W., F., at* 8. Associate Professor GIESE.

14. French Composition. Intended to supplement the second-year courses given above, and, except by special permission of the instructor, can be taken only by students of some other French course. *Throughout the year; Th., at* 10. Mr. PATZER.

15. French Conversation. The work is confined mainly to the class-room. Two hours a week, one-fifth credit. Except by special permission, it can be taken only in connection with some other French course. *Tu., Th., at* 8. Associate Professor GIESE.

16E. Second-year French. For engineers. Continuation of course 5E. Scientific prose of general and technical interest. Current scientific literature. *First semester.* Repeated in the second semester. *M., W., F., at* 12. Mr. MACNISH.

17C. Second-year French. For students in Commerce. A practical course in conversation, composition, and reading. *Tu., Th., at* 11. Mr. PATZER.

Primarily for Undergraduates

20. Advanced Reading. Continuation of course 11. Reading of *Travailleurs de la Mer*, etc. *Throughout the year; M., W., at* 12, *unless changed by special arrangement.* Professor OWEN.

21. French Literature. From the Renaissance to the Revolution. Lectures with collateral reading. This course is conducted in English. *Throughout the year; M., W., at* 12. Associate Professor GIESE.

22. French Literature. The classic drama: Moliere, Corneille and Racine. *Twice a week throughout the year.* (Omitted in 1906-07.) Associate Professor GIESE.

23. French Literature. The nineteenth century drama. Lectures and assigned reading. Representative works will be read

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in class. An introductory series of lectures will be given on the origin of the French drama, the miracle and mystery plays and the Old French theatre, tracing briefly its development to the Romantic period. Characteristic class reading is: Hugo's *Hernani;* De Musset's comedies; Dumas' plays; Scribe's *Le Verre d'Eau;* Pailleron's *Le Monde ou l'on s'ennuie;* Rostand's *Cyrano de Bergerac. Throughout the year; M., W., at* 10. Professor SMITH.

24. Advanced Composition and Conversation. Practice in writing and speaking based upon the reading of the works of Victor Hugo. *Throughout the year; Tu., Th., at* 11. Assistant Professor GAY.

25. French Literature. Victor Hugo: a detailed study of the formative period and early works. It is the intention to offer the following year a course to cover the middle period of Hugo's career. Conducted in French. *Twice a week throughout the year.* Associate Professor GIESE.

26. French Literature. The nineteenth century. Lectures, reports, and collateral reading. *Twice a week throughout the year.* (Omitted in 1906-07.) Associate Professor GIESE.

27. Conversation and Reading. *Two hours a week throughout the year.* (Omitted in 1906-07.) Associate Professor GIESE.

28. French Lyric Poetry and Versification. A study of lyric poetry from Villon to recent times. Lectures on French verse-structure from its origin to the present. *Twice a week throughout the year.* (Omitted in 1906-07.) Professor SMITH.

29C. Third-year French. For students in Commerce. Conversation, reading, and commercial correspondence. *Twice a week throughout the year.* Mr. PATZER.

30C. Fourth-year French. For students in Commerce. Conversation, reading, and commercial correspondence. A continuation of course 29C. *Twice a week throughout the year.* Mr PATZER.

Primarily for Graduates

40. Old French. Phonology and grammar. Lectures and reading. Primarily for graduates, but may be taken by undergraduates of especially good preparation. *Twice a week throughout the year.* (Omitted in 1906-07.) Professor SMITH.

41. Old French. An introduction to the Old French language

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and to the general laws of phonetic development from Latin to French. Nyrop's *Grammaire Historique de la Langue Francaise;* Gaston Paris' *Extraits de la Chanson de Roland;* Suchier's *Aucassin et Nicolette.* Undergraduates of sufficient preparation will be admitted to this course. *Twice a week throughout the year.* (Omitted in 1905-06.) Assistant Professor GAY.

42. Old French Literature. The Old French epic poetry. Lectures and much collateral reading. The history of the *Chansons de Geste* will be traced and several representative poems read during the year. Students in this course must be able to read Old French. Alternates with Old French 43. (Given in 1906-07.) *Twice a week throughout the year.* Professor SMITH.

43. Seminary in Old French. A study of the group of Old French epic poems known as the Cycle of the Crusades. Relation and development of the various branches with consideration of related prose works in Latin, Old French and other languages. For graduates only. *Twice a week throughout the year.* Alternates with Course 42. (Omitted in 1906-07.) Professor SMITH.

44 Old Provençal. Phonology and grammar. Poetry of the troubadours and other Provençal literature. Texts: Grandgent's *Phonology and Morphology of Old Provençal;* Appel's *Provenzalische Chrestomathie;* Restori's *Letteratura Provenzale.* Alternates with Old Spanish. (Given in 1905-06.) *Throughout the year, twice a week.* Professor SMITH.

45. Principles of Language. Examination of linguistic thought, its special nature, and the less obvious verbal means of indicating both the elements of thought and their mode of combination. (See also course 12.) *First semester; Tu., at* 7:15 P. M. Professor OWEN.

ITALIAN

1. Elementary Italian. Translation, reading, and pronunciation. Sauer's *Conversation Grammar;* Manzoni's *I Promessi Sposi. Three hours a week throughout the year.* Professor OWEN.

2. Italian Literature. History of Italian literature. Lectures,

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reading in class, and assigned work. Alternates with Italian 3. (Offered in 1906-07.) Assistant Professor GAY.

3. Dante. An introduction to the life and times of Dante, with special study of the Divine Comedy. Alternates with course 2. (Given in 1905-06.) Assistant Professor GAY.

SPANISH

Primarily for Undergraduates

1. Elementary Spanish. Grammar and reading. Giese's *First Spanish Book;* Alarcon's *Novelas Cortas Escogidas*, and *El Capitan Veneno;* Valdes' *Marta y Maria.* For students of the College of Letters and Science. *M., W., F., at* 10. Mr. SEYMOUR.

2EC. Elementary Spanish for students in Commerce and for Engineers. Giese's *First Spanish Book*, and other easy prose. Students in College of Letters and Science must take course 1, unless by special permission of instructor. Two sections. *M., Tu., W., Th., at* 9. Mr. SEYMOUR. *Tu., W., Th., F., at* 8. Mr. COOL.

3. Nineteenth Century Spanish. The modern novel, drama, and poetry will be studied. Open to students who have had elementary Spanish. *Throughout the year; M., W., F., at* 9. Alternates with course 4. (Offered in 1906-07.) Associate Professor GIESE.

4. Spanish Literature. Reading of selections from Cervantes *(Don Quijote)*, from Calderon *(El Magico Prodigioso)*, and from other classics. *Twice a week throughout the year.* Alternates with course 3. (Omitted in 1906-07.) Associate Professor GIESE.

5E. Second year. Scientific Spanish for Engineers. *El Hierro, La Chispa Electrica*, or *La Maquina de Vapor. First semester; M., W., F., at* 8. Mr. SEYMOUR.

6C. Second year in Commerce. Conversation, composition, and reading. In this course special attention is paid to the vocabulary of every day life. Students in College of Letters and Science who have had one year of Spanish must take course 3 unless allowed by special permission to enter this course. *Throughout the year; Tu., Th., at* 11. Mr. SEYMOUR.

7C. Third year in Commerce. Conversation, commercial corres-

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pondence, and reading. In this course special attention is paid to the vocabulary of commerce. *Throughout the year; W., F., at* 11. Mr. SEYMOUR.

8C. Fourth year in Commerce. Conversation, commercial correspondence, and reading. Continuation of course 7C. *Tu., Th., at* 8. Mr. SEYMOUR.

Primarily for Graduates

9. Old Spanish. The Poem of the Cid. Lectures on the Spanish epic and collateral reading. Old Spanish grammar and phonology. Texts: *Gramatica Historica Española*, by R. *Castellanos Anteriores al Siglo XV (Biblioteca de Autores Españoles)*. Intended primarily for graduates, but may be taken by other advanced students of sufficient preparation. *Throughout the year; twice a week.* Alternates with Old Provençal. (To be given in 1906-07.) Professor SMITH.

SCANDINAVIAN LANGUAGES

PROFESSOR OLSON

This department offers instruction in all of the Scandinavian languages (Norwegian, Danish, Swedish, and Old Norse). From one year's instruction in Modern Norse the student is expected to be able to read both Norwegian and Danish authors. The principal courses are devoted mainly to Norwegian authors, but additional instruction in Danish and Swedish literature is offered to students desiring to pursue these branches beyond the limits of the prescribed courses.

Courses 2a and 2b, taken together, or courses 3 and 4, may be taken as part of the required language work. (See Required Studies, p. 98.)

Primarily for Undergraduates

1. Modern Norse. Olson's *Norwegian Grammar and Reader*, together with easy selections in prose and poetry. For beginners. *Three hours a week throughout the year.*

2a. Modern Norse. Selections from the *Reader*. Björnson's *Synnöve Solbakken* (Flom's edition), and his shorter peasant stories. *Three hours a week throughout the year.*

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2b. Written and Oral Translation into Norse. The reading of prose selections as a basis for work in composition and conversation. *Once a week throughout the year.*

3. Kielland's *Skipper Worse* and Gunderson's *Norske Digte.* Two dramas by Holberg and three by Oehlenschlaeger are assigned for outside reading. *Twice a week throughout the year.*

4. Ibsen's *Brand* and *Peer Gynt.* As these dramas are of the greatest importance in Scandinavian literature, they are read critically and studied from both a linguistic and literary point of view. Much stress is placed on an adequate ethical interpretation. *Twice a week throughout the year.*

5. History of Dano-Norwegian Literature. Broch and Seip's *Norsk og dansk Litteraturhistorie,* with lectures and papers presented by students on the authors under discussion. *Three hours a week throughout the year.*

6. Swedish Literature. Teguer's *Frithiofs Saga,* Runeberg's *Fänrik Stals Sägner,* Vinsnes and Aanrud's *Svenske Digtere,* and Warburg's *Svensk Litteraturhistoria. Twice a week throughout the year.*

7a. Lectures on early Scandinavian literature and antiquities, with illustrative readings in translation. *Once a week; first semester.*

7b. Lectures on modern Scandinavian authors and literary epochs, with illustrative readings in translation. *Once a week; second semester.*

A knowledge of the Scandinavian languages is not required for courses 7a and 7b.

For Undergraduates and Graduates

8. Old Norse. Vigfusson and Powell's *Icelandic Prose Reader* or Kahle's *Altisländisches Elementarbuch* and Nygaard's *Udvalg af den norröne Literatur. Twice a week throughout the year.*

9. Modern Norwegian Literature. The critical reading of representative dramas and novels. The principal authors studied are Ibsen, Björnson, Lie, and Kielland. *Throughout the year; twice a week.*

10. Studies in Norwegian Poetry. Selections from Wergeland Welhaven, Munch, Moe, Björnson, and Ibsen, to illustrate

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the different epochs in the development of modern Norwegian literature. *Once a week; first semester.*

11. Norwegian Dialect Writers. The principal authors considered are Aasen, Vinje, Garborg, and Sivle. Some attention is also given to the language reform movement. *Once a week; second semester.*
12. Scandinavian Literature. A general survey, with critical study of special periods. *Throughout the year; twice a week.*

GERMAN

PROFESSOR HOHLFELD, PROFESSOR VOSS, ASSISTANT PROFESSOR STERLING, ASSISTANT PROFESSOR ROEDDER, ASSISTANT PROFESSOR EVANS, DR. MEISNEST, DR. GOODNIGHT, DR. VEERHUSEN, DR. PROKOSCH, DR. KIND, DR. HAUSSMANN, MR. HAERTEL, MR. LEHMANN, MR. HILMER, MR. PURIN, AND MR. OSWALD

The courses in German are divided into the following four groups:—

A. The elementary courses represent the work ordinarily done in first and second year classes, and are so graded as to meet the needs of high school graduates of different degrees of preparation. Students without previous work in German enter course 1; those who have had two years of high school German enter course 2, 2G, 2L, 2S, 2C, or 2E; those who have taken three years of German in the high school enter course 2A, completing the equivalent of course 2 by the end of the first semester. Freshmen with four years of high school German are not allowed to enter any of these elementary courses. They should regularly take up German 3A, unless their general course of study requires a special class in German, like 3S, 3C, or 3E. Students who possess a thorough practical knowledge of German considerably in advance of what their high school work indicates, should present themselves for an informal examination with a view of being assigned to more advanced classes. Credit for the omitted lower work will, however, be granted only in exceptional cases, regulated by special rules of the Faculty, and never without a formal examination.

B. The advanced practice courses differ much in character and grade of work, but have this in common that they do not mainly deal with literature, being intended for specific practical

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ends, definitely stated in each case. None of these courses are absolutely required of students wishing to study German solely for its literature. Such students after completing course 2, should select their work from courses 15 to 20, though some of the work in composition or conversation may be advisable in connection with their literary courses. Students taking their major in German are required to take at least course 10 or 12 from this group.

C. The courses from 15 to 48 are literary courses of very different degrees of advancement, those from 40 to 48 not being open to undergraduate students. Many of the less advanced courses, from 15 to 27, though different in subject matter, are of about the same grade of difficulty. Elections from this group, therefore, are subject to certain restrictions stated below, after course 27. Ordinarily, about twelve semester hours from courses 15 to 27 will be adequate preparation for the more advanced work in literature, as well as for the more elementary courses in philology. Students intending to specialize in German literature are advised to do related work in philosophy, in medieval and modern history, and in English literature. They should also pursue, to a fair degree of advancement, the study of at least one other foreign language and literature, ancient or modern.

D. The courses from 50 to 65 are devoted to work in German philology. While most of these courses are intended for graduate students working for a higher degree in German, some of them are well suited to the needs of advanced undergraduates. This is specially true of courses 50 and 51, which are required of all students expecting to teach German as their principal subject; but also of courses 52, 53, 57, and 59, all of which are so conducted as to be of direct benefit to properly qualified seniors.

Major in German

Students beginning the study of German in the University with course 1 will generally not be able to choose German as their major to good advantage. Students taking course 2 in their Freshman year should, as a minimum, devote to German on an average eight semester hours a year for the remaining three years, taking thus a total of twenty-four semester hours in advance of course 2. At least eight of these hours should represent class work in advance of course 27. This amount represents a minimum which will rarely prove sufficient in the case of those preparing to teach German as their principal subject. Of students of

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the latter class the following courses are required: 10 or 12, 14, (at least the one-fifth course in methods), 30 or 33, 50 and 51.

Germanistische Gesellschaft

The Germanistische Gesellschaft is an organization of students and instructors interested in the study of the German language and literature and of German life and culture. There are two general meetings each month, on Wednesday evenings, the programs consisting of lectures, recitations, dramatic performances, singing, and social entertainments. All students specializing in German, preparing to teach German, or wishing to keep up their knowledge of German, are urged to attend regularly.

ELEMENTARY COURSES

For Undergraduates

1. Beginners' German. Grammar and easy readings, with practice in speaking and writing German. *Four hours a week throughout the year.* Six sections. Assistant Professor EVANS, Dr. VEERHUSEN, Dr. PROKOSCH, Mr. HAERTEL, Mr. LEHMANN, and Mr. HILMER.

1B. Beginners' German. Second semester only. In this course the work of the first semester is repeated. Students beginning the study of German at this time may complete course 1 in the Summer Session, or may continue their work in the following year, in course 1A. *Second semester; M., Tu., Th., F., at* 3. Dr. VEERHUSEN.

1A. Advanced First Year German. Open to students who have taken course 1B or, for some special reason, have had but one year of German at the high school. *Throughout the year; Tu., W., Th., F., at* 12. Mr. HILMER.

2. Second Year German. Modern prose, narrative and dramatic, selected lyrics and a drama by Lessing or Schiller. Review of the forms, and elementary syntax. Written and oral exercises. For students who have had course 1, or two years of high school German, or an equivalent. Engineering freshmen and students specializing in science may take course 2 in place of 2E or 2S. *Four hours a week throughout the year.* Eight sections. Assistant Professor EVANS, Dr. GOODNIGHT, Dr. PROKOSCH, Dr. HAUSSMANN, Mr. HAERTEL, Mr. LEHMANN, Mr. PURIN, and Mr. OSWALD.

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2G. Beginning with the year 1906-07, one of the sections of German 2 will be so conducted as to meet the special needs of such German-Americans as possess a fair reading and speaking knowledge of German, but are deficient in grammatical accuracy.

2L. Second Year German. Especially arranged for students of Latin or Greek, who should be able to cover more ground than is gone over in course 2. *Throughout the year; Tu., W., Th., F., at* 10. Dr. VEERHUSEN.

2S. Second Year German. For students specializing in science. Identical with course 2, except that easy scientific prose is introduced in part of the second semester. *Throughout the year; Tu., W., Th., F., at* 11. Assistant Professor STERLING.

2C. Second Year German. For freshmen in the Course in Commerce. Practically identical with course 2. *Throughout the year; Tu., W., Th., F., at* 9. Assistant Professor ROEDDER.

2E. For Engineering freshmen. A regular second year's course, like course 2, except that easy scientific prose is introduced in part of the second semester. *Four hours a week throughout the year.* Four sections. Dr. MEISNEST, Dr. KIND, Dr. HAUSSMANN, and Mr. HAERTEL.

2A. Advanced Second Year German. Open to students who enter the University with three years of high school German or its equivalent. *Four hours a week throughout the year.* Three sections. Dr. GOODNIGHT, Dr. PROKOSCH, and Dr. KIND.

ADVANCED PRACTICE COURSES

Primarily for Undergraduates

3A. Third Year German. Modern and classical prose and verse. Oral and written work. Study of syntax. Open to freshmen who enter the University with four years of high school German. *Throughout the year; M., Tu., W., F., at* 12. Dr. MEISNEST.

3S. Scientific German. For students specializing in science who have had course 2 or 2S. Rapid reading of scientific prose. *Throughout the year; W., F., at* 9. Assistant Professor STERLING.

3C. For sophomores in the Course in Commerce. Reading, conversation, and composition. Two sections. *Throughout the year; Tu., Th., at* 11. Dr. VEERHUSEN and Dr. HAUSSMANN.

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3E. For Engineering sophomores. Advanced prose on subjects of technical science. *Half-year course, given in both semesters.* Four sections. *M., W., F., at* 8. Dr. MEISNEST and Dr. GOODNIGHT.

4C. For juniors in the Course in Commerce. Reading, conversation, composition, chiefly on topics of special value to students of commerce. *Throughout the year; Tu., Th., at* 9. Assistant Professor STERLING.

5C. For seniors in the Course in Commerce. A continuation of the work of 4C. *Throughout the year; Tu., Th., at* 11. Dr. PROKOSCH.

6. Grammar and Composition. Open to students who have had course 2 or an equivalent, but desire more practice in grammar and prose composition. Without special permission, this course can be taken only in connection with some other course in the department. *M., at* 12. Mr. HILMER.

7. Elementary Conversation. Practice in class; the work at home not to exceed one hour a week. Open on the same conditions as course 6. *One hour credit. Tu., Th., at* 11. Dr. GOODNIGHT and Mr. LEHMAN. *Tu., Th., at* 3. Dr. KIND.

8. Dramatic Reading. Recitation of poems and reading of dramas with divided parts, with special attention to pronunciation and expression. Open, after consultation, to students of fair advancement in German. Not open to freshmen. *One hour credit. Th. at* 5. Dr. MEISNEST.

9. Critical German Prose. Rapid reading in history, biography, criticism, etc. Especially designed for students who wish to read with ease German books on historical, philosophical, and literary topics. Open to students who have had at least course 2 or an equivalent. *W., F., at* 12. Dr. HAUSSMANN.

10. Composition and Conversation; with special work in German syntax. Open to students who have had at least four semester hours in advance of course 2. *M., W., at* 11. Dr. MEISNEST. *Tu., Th., at* 12. Mr. HAEBTEL. *Tu., Th., at* 9. Dr. VEERHUSEN.

12. Advanced practice in writing and speaking German. Discussions and essays on topics of German life and literature. Open to advanced students specializing in German. This course is decidedly in advance of course 10; but ordinarily

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students should take only one of the two courses. *Tu., Th., at* 10. Assistant Professor EVANS.

14. Teachers' Course. A critical study of the methods of teaching modern foreign languages. Lectures, reports, discussions, and practice teaching (one hour). Review of grammar from the standpoint of the high-school teacher, and elementary phonetics (one hour). Open to seniors and graduate students. The entire course is a two-fifth study, but either part may be taken separately for one-fifth credit. *M., Th., at* 3. Professor HOHLFELD and Professor VOSS.

Courses 12 and 14 may be counted toward the master's degree by graduate students taking German as their major or minor.

GERMAN LITERATURE

Primarily for Undergraduates

15. Classical and Modern Writers. Selections from eighteenth and nineteenth century authors, and written exercises (once every two weeks). For students who have had second-year German, including 2A, and intend to specialize or do advanced work in German. Not open to students who have had 3A. *M., W., F., at* 9. Dr. VEERHUSEN.

16. Classical and Modern Writers. Similar to course 15, but more advanced. Open to students who have had 2A or 3A. Courses 15 and 16 are mutually exclusive. *M., W., F., at* 3. Dr. KIND.

To make suitable four or five hour courses, 15 or 16 should be combined with 6, 7, 8, 9, 17, 18, or 20. Course 16 may also be combined with course 10.

17. Modern German Dramatists. Grillparzer, Hebbel, and other authors, like Ludwig, Wildenbruch, and Hauptmann. A rapid reading course. *Tu., Th., at* 11. Dr. KIND.

18. Modern German Novelists. Scheffel, Freytag, Keller, C. F. Meyer, and Sudermann. A rapid reading course. *M., W., F., at* 11. Dr. HAUSSMANN.

20. Schiller. Introductory study of his life, and selected works. *Maria Stuart* or *Braut von Messina, Gedichte,* and *Wallenstein. Tu., Th., at* 10. Assistant Professor STERLING. *W., F., at* 11. Assistant Professor ROEDDER.

Courses 17 to 20 are primarily intended for students who have had course 2 or its equivalent. Students having had

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more than four semester hours in advance of course 2 will be required to do additional work to receive full credit.

21. Modern German Poetry. *First semester:* Lyrics and ballads. *Second semester:* Epic poems, like Scheffel's *Der Trompeter von Säckkingen. M., W., F., at* 12. Assistant Professor STERLING.

22A. Heine. Introduction to the study of his life and poetry. Lyrics, *Harzreise*, and other prose writings. *First semester; three times a week.* Assistant Professor EVANS.

22B. Hebbel. Introduction to the study of his life, poetry, and theory of art. The class will read several dramas and selections from letters and diaries. *Second semester; three times a week.* Assistant Professor EVANS.

23. Goethe. Introductory study of his life, and selections from his works. *Götz* and *Egmont. Tu., Th., at* 9. Given in alternate years. (Omitted in 1906-07.) Professor Voss.

24. Lessing. Introductory study of his life, and selections from his works. *Emilia Galotti, Nathan*, and prose selections. *Tu., Th., at* 9. Alternates with 23. Professor Voss.

26. Lessing, Goethe, and Schiller. An introduction to the classical literature of the eighteenth century. *Laokoon*, or other critical writings of Lessing, Goethe's *Tasso* and selected poems, Schiller's aesthetic writings, or his correspondence with Goethe. *Tu., Th., at* 12. Given in alternate years. (Omitted in 1906-07.) Professor HOHLFELD.

27. Nineteenth Century Drama. An introductory study of the development of the German drama from Kleist to Hauptmann. The class will read representative dramas from this period. *Tu., Th., at* 12. Alternates with 26. Professor HOHLFELD.

Courses 21 to 27 are primarily intended for juniors specializing in German, but are open to all others who have had at least six semester hours in advance of course 2.

Without special permission, no student is allowed to count more than two of the courses from 15 to 20, and three year courses, or their equivalent, from 21 to 27.

For Undergraduates and Graduates

30. Goethe's Faust. Interpretation and discussion of both parts, with informal lectures and collateral reading in Faust literature. Conducted in English. Open to juniors and sen-

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iors who have had at least one of the courses from 21 to 27. *Tu., Th., at* 9. Alternates with 33. Professor HOHLFELD.

31. Introduction to the History of German Literature. English lectures, and private reading of representative works of German literature in English translations. This course does not require a particular knowledge of the language, and is primarily intended for students who do not specialize in German. Not open, without special permission, to students below the junior class. *Twice a week throughout the year.*

33. General History of German Literature. A general survey for students specializing in German. Lectures, reports, and readings. Klee's *Deutsche Literaturgeschichte* and Max Müller's *German Classics*. *Tu., Th., at* 9. Given in alternate years. (Omitted in 1906-07.) Professor HOHLFELD.

34. Nineteenth Century Authors. Lectures, collateral reading, and exercises in literary criticism. Special attention is given to the development of the novel and, in a less degree, of lyric poetry. *Th.*, 4 *to* 6. Dr. GOODNIGHT.

36. Popular German Literature. *Volkslied, Märchenliteratur,* and *Volksbücher* (*first semester*); modern dialect literature (*second semester*). *Twice a week.* (Omitted in 1906-07.) Assistant Professor ROEDDER.

38. Shakespeare in Germany. A study of the more important translations of Shakespeare into German, and of the influence of Shakespeare on German literature, especially in the seventeenth and eighteenth centuries. *Second semester; twice a week.* Dr. MEISNEST.

Primarily for Graduates

40. The Romantic School in Germany. After tracing the genesis of eighteenth century Romanticism, the course has for its aim a systematic study of the philosophic, literary, and cultural elements of the Romantic school. *Second semester; three hours a week.* Given in alternate years. (Omitted in 1905-06.)

41. History of the German Drama. The course traces the development of the German drama up to the time of Lessing. The ground covered includes the liturgical drama, the *Fastnachtspiel*, the *Schuldrama*, the English influence of the seventeenth, and the French influence of the first half of the eighteenth century. *Th.*, 4 *to* 6. Given in alternate

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years. (Omitted in 1906-07.) Assistant Professor EVANS

44. History of Middle High German Literature. This course does not deal with the textual interpretation of the documents themselves, but with the evolution of the literary movements during the period from the twelfth to the end of the fifteenth century. Special attention will be given to the corresponding tendencies in politics, social life, religion, and art, as also to the later reappearance of medieval ideals in modern literature. Open to students who have had course 52. *Th.*, 4 *to* 6. Alternates with 44. Assistant Professor EVANS.

46. Literary Movements of the Eighteenth and Nineteenth Centuries. The work of this course changes from year to year, always centering around some general movement in the literature of the last two centuries. The following topics indicate the scope of the work: the renaissance of the middle ages; the growth of English influence in German literature; the evolution of realism in the 19th century. *M., W., at* 9. Alternates with course 47. Professor HOHLFELD.

47. Pro-seminary in German Literature. The object of this course is, through the assignment of definite tasks of limited compass, to prepare first-year graduate students for the more advanced work of the seminary proper. In the first semester the work will be based on representative poems of the eighteenth century, with special reference to questions of meter, literary style, and *Weltanschauung;* in the second semester some of the critical writings of Lessing and his contemporaries will be studied. *M., W., at* 9. Given in alternate years. (Omitted in 1906-07.) Professor HOHLFELD.

48. Seminary in German Literature. The aim of the seminary is to train properly qualified students in the scientific methods of the historical and critical study of literature. The rotation of subjects forms a cycle of at least three years. In 1904-05, the work was in the literature from Opitz to the middle of the eighteenth century; 1905-06, in the Storm and Stress movement, and in the Romantic school. In 1906-07, the work will be in Herder and Goethe *(first semester)*, and in Goethe's *Faust* (*second semester*). *W.*, 4 *to* 6. Professor HOHLFELD.

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For the work of the German Journal Club, see the announcement of the Graduate School.

GERMAN PHILOLOGY

PROFESSOR VOSS AND ASSISTANT PROFESSOR ROEDDER

For Undergraduates and Graduates

50. Historical Survey of German, with special reference to Modern German grammar. German in its relation to the other members of the Germanic and Indo-germanic family of languages. Lectures and reading of selected texts to illustrate the historical development of the language, especially during the Modern High German period. *First semester; M., W., at* 11. Professor Voss.

51. Middle High German. Introductory course. Lectures on the German folk epics and German heroic legends. Study of either the Nibelungenlied or Kudrun. *Second semester; M., W., at* 11. Professor Voss.

Courses 50 and 51 are required of students who expect to teach German as their principal subject.

52. Advanced Middle High German. Studies in the language and literature of the twelfth and thirteenth centuries. Lectures and critical study of texts. *Tu., Th., at* 10. Professor Voss.

54. Gothic Grammar. Readings from the Gospels. *First semester; twice a week.* Assistant Professor ROEDDER.

55. Old High German, with special reference to German life and culture. Braune's *Althochdeutsche Grammatik* and readings from Braune's *Althochdeutsches Lesebuch. Second semester; twice a week.* Assistant Professor ROEDDER.

57. Introduction to the Study of *Volkskunde.* Lectures and collateral reading. *First semester; once a week.* Assistant Professor ROEDDER.

58. Old Saxon, with special reference to Germanic life and culture. Holthausen's *Altsaechsisches Elementarbuch* and extracts from the *Heliand,* ed. Behaghel. *First semester; twice a week.* In alternate years. (Omitted in 1905-06.) Assistant Professor ROEDDER.

59. Germanic Mythology and Heroic Legends. Lectures and collateral reading. *Second semester; twice a week.* In alternate years. (Omitted in 1905-06.) Assistant Professor ROEDDER.

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Primarily for Graduates

60. Classical German Philological Literature. Introduction to the history of German philology and to the study of philological methods of research and investigation. *W.*, *at* 9. Professor Voss.

62. Modern German Grammar. A thorough and practical study of the language as spoken and written today, with lectures on the history of the Modern High German literary language. Alternates with course 63. *M.*, *W.*, *at* 10. Professor Voss.

63. Early Modern High German. Studies in the language and literature of the fifteenth and sixteenth centuries. Lectures and critical study of texts. Alternates with course 62. (Omitted in 1906-07.) *M.*, *W.*, *at* 10. Professor Voss.

64. Pro-seminary in German Philology. For 1906-07: Old High German Texts *(first semester)*; Old Saxon Texts *(second semester)*. For 1907-08: Studies in the Development of German Prose Style. *S.*, 8 *to* 9. Assistant Professor Roedder.

65. Philological Seminary. The work of the seminary varies. While special attention is given to the classical writers of the Middle High German period, the other periods also, especially the transition period from Old to Middle High German, and from Middle to Modern High German, will be studied. Hartmann von Aue, Gottfried von Strassburg, Wolfram von Eschenbach, *Deutsche Gedichte des XI, und XII. Jahrhunderts*, Reinke de Vos, Sebastian Brant, Thomas Murner, Hutten, Luther, Fischart, and Hans Sachs. *Throughout the year; Tu.*, 4 *to* 6. Professor Voss.

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ENGLISH

PROFESSOR FREEMAN, PROFESSOR FRANKENBURGER*, PROFESSOR HUBBARD, ASSOCIATE PROFESSOR LATHROP, ASSISTANT PROFESSOR PYRE, ASSISTANT PROFESSOR CAIRNS, ASSISTANT PROFESSOR DODGE, ASSISTANT PROFESSOR BROWN, ASSISTANT PROFESSOR BLEYER, ASSISTANT PROFESSOR LYMAN, DR. BEATTY, MR. COOK, MR. DICKINSON, MISS BERKELEY, DR. WOOLLEY, MR. ROE, MR. NEIDIG, MR. NELLES, AND MISS LAMONT

RHETORIC AND ORATORY

Primarily for Undergraduates

1. Freshman English. English prose style. Composition. The elements of effective writing in prose, based upon direct study of selected authors, with training in composition. *Three hours a week throughout the year.* Twenty-three sections. For hours and rooms see time table of required studies. Required of all freshmen in the colleges of Letters and Science, Agriculture, and Engineering. Professor HUBBARD, Associate Professor LATHROP, Assistant Professor PYRE, Assistant Professor CAIRNS, Dr. BEATTY, Mr. COOK, Mr. DICKINSON, Miss BERKELEY, Dr. WOOLLEY, Mr. ROE, Mr. NEIDIG, and Mr. NELLES.

2. Sophomore Composition. Elective for students who have finished the required English of the freshman year. This course may not be elected by semesters. No credit will be given for less than the entire year. *Throughout the year; Tu., Th., at* 8, 11, *and* 12. Assistant Professor DODGE, Assistant Professor BROWN, and Mr. DICKINSON.

19. Newspaper Writing. Practice in newspaper reporting, correspondence, and other details of reportorial work. Open, by special permission, to students who have had English 1. *First semester; Tu., Th., at* 10. Assistant Professor BLEYER.

19a. Newspaper Writing. Practice in editorial work, preparation of special articles, and other kinds of journalistic writing. Open to those who have had English 19, and to others by

*Died February 6, 1906.

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special permission. *Second semester; Tu., Th., at* 10. Assistant Professor BLEYER.

19b. Narrative Composition. The study of some representative forms of the story, as illustrations of its development, with exercises in plot-structure, technique, and criticism. Open to seniors, juniors, and to sophomores who have done very good work in English 1. *Second semester; Tu., Th., at* 10. Dr. BEATTY.

3. The Forms of Public Address. Training in preparation of public speeches: the argument, the eulogy, the political speech, the commemorative address, the after-dinner speech, and other forms. Text book, lectures, and analysis of masterpieces, accompanied by original compositions in each of the various forms. *First semester, or throughout the year; M., W., F., at* 9. Assistant Professor LYMAN.

4. Advanced Rhetoric. Open to those who have completed courses 1 or 2. The course aims to give (a) a comprehensive knowledge of rhetorical science, keeping in close touch with the philosophy of literary expression; (b) practice, with personal criticism, in all forms of composition, each student being allowed to lay special stress on such lines as he desires. *Throughout the year; M., W., F., at* 12. Professor FRANKENBURGER.

5. Forensics. The general subject of argumentation and of public discussion, treated both from the side of construction, and from the side of delivery. Special attention will be paid to extempore speaking and debates. *Throughout the year; M., W., F., at* 11. Professor FRANKENBURGER.

6. Advanced Composition I. Elective for juniors and seniors, and for sophomores who have done very good work in course 1. This course may not be elected by semesters. No credit will be given for less than the whole course. *Throughout the year; M., W., F., at* 11. (In 1906-07, *Tu., Th., at* 11; the credit will be for three unit-hours.) Assistant Professor DODGE.

7. Advanced Composition II. Exposition. Study of such authors as Coleridge, Lyell, Huxley, Darwin, Bagehot; practice in expository composition, with reference to the special studies of individual students. Open to those who have had either course 2 or 6, and to others with the consent of

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the instructor. *Throughout the year; Tu., Th., at* 11. Associate Professor LATHROP.

10. Dramatic Reading. The study of Shakespeare as a dramatic poet. The reading of *Macbeth, Othello, Merchant of Venice,* and *Hamlet.* Parts of these plays are rendered by the class. Open to those who have taken course 12, or its equivalent. *Throughout the year; Tu., Th., at* 12. Professor FRANKENBURGER.

11a. Argumentation. Study of the principles of analysis, brief-drawing, evidence, refutation, and rhetorical presentation, with a view to efficiency in conviction and persuasion. Text book, lectures, and original compositions. Intended as special preparation for 11b. *First semester; Tu., Th., at* 10. Assistant Professor LYMAN.

11b. Debating. Practical work in brief-drawing and in the collection and handling of evidence. Lectures on debating. Each student will prepare four debates under personal direction of the instructor, and will speak several times from the floor. Intended for those who wish to make a careful study of debating. Open to students who have had special training in argumentation. *Second semester; Tu., Th., at* 10. Assistant Professor LYMAN.

12. Elocution. Lectures will be given upon vocal physiology, the proper use and care of the voice, reading and gesture. Daily practice in vocal expression. *Throughout the year; M., W., F.* Miss LAMONT and Assistant Professor LYMAN.

13a. Oratorical Themes. Lectures on the theory of oratory. Analysis of masterpieces. Preparation of original orations. Intended as special preparation for students who wish to enter oratorical contests. *First semester; Tu., Th., at* 9. Assistant Professor LYMAN.

13b. Oratorical Delivery. Study of the principles of oral presentation for the cultivation of a natural and direct style. *Second semester; Tu., Th., at* 10. Assistant Professor LYMAN.

14. Elocution. Reading, declamation, and lectures. *Second semester; M., W., F., at* 9. Miss LAMONT and Mr. OLBRICH.

15. Practical Public-Speaking. (Elective in the Law School.) Lectures on style in delivery. Drill in voice, gesture, carriage, etc. Constant practice in presentation of the various forms of public addresses. *First or second semester; Tu., Th., at* 11. Assistant Professor LYMAN.

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16. Declamation. Development of power and originality in the interpretation of literature, with a view to public presentation. Private rehearsals each week. Open to those who have had previous preparation. *Throughout the year; Tu., Th.* Miss LAMONT.

For Undergraduates and Graduates

18. Dramatic Seminary. *Throughout the year; W.*, 4 *to* 6. Professor FRANKENBURGER.

8. Rhetorical Seminary. The seminary for the year 1905-06 will study the philosophy of the oration as revealed in the great American orations and in the lives of the orators. *Throughout the year; F.*, 4 *to* 6. Professor FRANKENBURGER.

9. Literary Criticism. The course will consist of a consideration of the main principles of literary criticism, and a study of the ballads and romances, as an introduction to the study of comparative literature. *Throughout the year; Tu., Th., at* 9. Dr. BEATTY.

The advanced work in rhetoric and composition in the University is fairly equal in scope and variety to the needs of the student who is looking toward journalism. For facility in composition course 6 is provided, which meets three times a week for a year, and requires from each student a written paper at every meeting. Those finishing this course may enter upon course 7 for another year. Course 4 in advanced rhetoric, three times a week for a year, gives the philosophy of rhetorical expression, with practice in writing and criticism, and practical talks on preparation of manuscript, proof-reading, etc. Following this is course 9, which takes up style and literary criticism, twice a week for a year. These courses combined furnish ample practice in the writing of fiction, poetry, dramatic composition, and critical reviews.

ENGLISH LANGUAGE

Primarily for Undergraduates

20. Anglo-Saxon and Middle English. This course is designed to furnish a basis for the more advanced study of English philology, and to give an introduction to the history of the English language. A considerable amount of Anglo-Saxon prose and Middle English is read, the historical development of the language is set forth, and the general principles

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of linguistic science are illustrated. Required of students who take English as their major. The work of the first semester may be elected without the work of the second semester. First semester, Anglo-Saxon; second semester, Middle English. *Throughout the year; M., W., F., at* 9. Professor HUBBARD.

23. Modern English Grammar. Designed to meet the needs of students who expect to teach. The general principles of linguistic science are set forth and illustrated from English; attention is given to the psychology of speech. The facts of modern English grammar are considered in the light of the historical development of the language. Open to juniors and seniors. *Second semester; Tu., Th., at* 8. Professor HUBBARD.

25. English Language. A study of the principles of linguistic development as illustrated by the English language, designed for those intending to teach English, as well as for those interested in philology. *First semester; Tu., Th., at* 12. Assistant Professor BLEYER.

For Undergraduates and Graduates

22. Beowulf. The whole poem is read critically; its relation to the literature of other Germanic languages is considered. As far as possible the course is made to serve as an introduction to the study of old Germanic life. Open to seniors. *First semester; M., W., F., at* 8. Professor HUBBARD.

21. Anglo-Saxon Poetry. A continuation of course 22. Especial attention is given to the lyric and epic poems that are least affected by Christianity. *Second semester; M., W., F., at* 8. Professor HUBBARD.

26. Principles of Etymology and Semasiology. A detailed study of the development of the meaning of words as illustrated by English and other languages. *Second semester; Tu., Th., at* 12. Assistant Professor BLEYER.

For Graduates

24. English Philology Seminary. Critical study of texts; historical grammar; dialects. The work is varied from year to year. A course in Anglo-Saxon grammar with special reference to Germanic relations is given at least once in

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three years; this is designed to meet the needs of students of German as well as students of English. In other years courses are given in which the critical study of some Anglo-Saxon or Middle English Text is pursued. The subject for 1905-06 is Chaucer's Troillus and Chriseyde. *Two hours a week throughout the year.* Professor HUBBARD.

ENGLISH LITERATURE

Primarily for Undergraduates

30. General Survey of English Literature. This course includes a survey of the history of English literature from the earliest times to the middle of the nineteenth century, and a careful study of the works of representative authors of each period. As an introduction to the study of English literature, this course is prerequisite to all other courses in English. It is required of sophomores taking English as their major, and is recommended to students desiring a single course in English literature.
Section 1, *M., W., F., at* 8. Assistant Professor BROWN.
Section 2, *M., W., F., at* 9. Assistant Professor PYRE.
Section 3, *M., W., F., at* 9. Assistant Professor BROWN.
Section 4, *M., W., F., at* 10. Assistant Professor BLEYER.
Section 5, *M., W., F., at* 11. Assistant Professor CAIRNS.

31. Chaucer. Beginning with some study of Chaucer's language and grammar, as many of the Canterbury Tales are read as time allows. The Parliament of Foules and the Prologue to the Legend of Good Women are also read. *First semester; M., W., F., at* 12. Assistant Professor BROWN.

40. American Literature. The aim of this course is to give a general survey of literary writings in America from the earliest times, keeping in mind their relations to continental and English literature, and to national development. An attempt is made to meet the needs of students who expect to teach American literature in high schools. This course must be preceded by course 1, and should be preceded or accompanied by course 30. *Throughout the year; Tu., Th., at* 9 *and* 10. Assistant Professor CAIRNS.

48. Introduction to English Poetry. In this course a small number of representative poems will be studied thoroughly. The course is designed primarily for students who expect

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to elect only one course in English, and is open to election by all sophomores, juniors, and seniors. Students who desire to elect any other course in English literature after taking English 48 will be required to take English 30 before or with the advanced course. *Throughout the year; Tu., Th., at* 8. Associate Professor LATHROP.

For Undergraduates and Graduates

32a. The Sixteenth Century. This course covers the prose and the poetry of the period, exclusive of the drama. It deals briefly with the Revival of Learning and at length with the literature from Wyatt to the death of Spencer. Some attention is given to the influence of Italy and France. Students are required to do considerable reading and to write papers regularly on their reading. *First semester; M., W., F., at* 9. Alternates with course 33. Assistant Professor DODGE.

32b. The Seventeenth Century. *Second semester; M., W., F., at* 9. Alternates with course 33. Assistant Professor DODGE.

33. The Eighteenth Century, (from Dryden to Cowper). *Throughout the year; Tu., Th., at* 9. (Alternates with courses 33a and 33b; not given in 1906-07.) Associate Professor LATHROP.

34. The Romantic Movement. *First semester; M., W., F., at* 10. Assistant Professor PYRE.

35. The Victorian Era. *Second semester; M., W., F., at* 10. Assistant Professor PYRE.

36. The Drama. Shakespeare. A part of the first semester is devoted to the history of the development of the drama, the remainder of the year to Shakespeare. All the thirty-seven plays are read, while more specific attention is given to a part of his work by a detailed study of certain plays representative of the different periods of his dramatic career. The course is open to seniors, and is required of seniors who take English as their major. *Throughout the year; M., W., F., at* 11. Professor FREEMAN.

37. Epic Poetry. Lectures on the characteristics and varieties of epic poetry, and on the principal world epics. Collateral reading and papers. The members of the class are expected to obtain and preserve copies of the principal world-famous national poems (the foreign epics in translation). Open to juniors and seniors. *Throughout the year; W., Th., at* 5.

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Alternates with course 38. Given in 1905-06. Professor FREEMAN.

38. English Lyric Poetry. A study of the best lyrical poems from the time of Wyatt and Surrey to that of Tennyson. *Throughout the year; M., W., F., at* 10. Alternates with course 37. Professor FREEMAN.

39. The Novel. During the first semester the English novel of the eighteenth century is the subject of the course. Attention is given to the influence of Spanish and French upon English fiction and of English upon French and German fiction. Novels by the most important English authors of the eighteenth century are read, and the attempt is made to determine the contribution of each writer to his art. During the second semester Miss Austen, Scott, Dickens, Thackeray, and George Eliot are studied. The first semester may be taken without the second, but not the second without being preceded by the first. *Throughout the year; Tu., Th., at* 10. (Omitted in 1906-07.) Associate Professor LATHROP.

41. Spenser. The course aims to cover the greater part of Spenser's poetical work. *Second semester; M., W., F., at* 9. Assistant Professor DODGE.

42. Poetics. The science of verse. The history of English verse-forms. *Second semester; Th.,* 2 *to* 4. Assistant Professor PYRE.

43. The English Essayists. *First semester; M., W., F., at* 9. Assistant Professor DODGE.

45. Browning. The interpretation of representative poems. *First semester; M., W., F., at* 12. Professor HUBBARD.

46. Comparative Literature. Mediaeval literature in French and English with especial reference to the study of King Arthur. The lectures, beginning with some account of twelfth century literature in French and English, endeavor to trace the origins of the Arthur story and its development down to Malory's Mort d'Arthur. Each student prepares a report on some romance or group of romances. Alternates with 46a. *Second semester; M., W., F., at* 12. Assistant Professor BROWN.

46a. Comparative Literature. Mediaeval literature in the vulgar tongues, with special reference to English literature from the Norman Conquest to Wyatt and Surrey. (Alternates

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with 46; not given in 1905-06.) *M., W., F., at* 12. Assistant Professor BROWN.

47. Significant Movements in American Literature. *First semester:* First attempts at a national literature; especially the work of the "Hartford Wits" and the "Knickerbocker" writers. *Second semester:* The New England Writers. In this course the significance of important groups of authors is considered more thoroughly than in course 40, and representative members of each group are studied intensively. The authors to receive special attention are usually decided upon after consultation with the class. In 1904-05 those chosen for the first semester were Charles Brockden Brown, Irving, Cooper, and Poe; for the second semester Emerson, Lowell, and Holmes. Open to students who have completed course 40 or its equivalent. The course may be elected by semesters. *Tu., Th., at* 8. Assistant Professor CAIRNS.

49. English Biography. Lectures on English biographical writing, with detailed study of classic biographies. *First semester; Tu., Th., at* 11. (Omitted in 1905-06.) Assistant Professor PYRE.

50. The Teaching of English. In this course are treated the general principles and historical development of the teaching of English literature, grammar, and composition. Suggestions are made for solving the actual problems of teaching of English, especially in high schools, and the most important text and reference books are discussed with the class. An opportunity for practice teaching is given to a small number of students, those whose general standing and work in the class are of the highest grade being selected for the purpose. *Throughout the year; W., at* 2. Associate Professor LATHROP.

52. Modern Drama. English dramatic literature from the Restoration to the present time. Lectures, collateral reading, and analysis of plays. *Throughout the year; Tu., Th., at* 11. Assistant Professor PYRE.

Primarily for Graduates

51. The Predecessors of Shakespeare. History of the earlier Elizabethan drama, with special consideration of certain problems; study of the works of Kyd, Greene, Peele, Mar-

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lowe and Lyly. *Two hours a week throughout the year.* Professor HUBBARD.

44. English Literature Seminary. The subject varies from year to year. The subject for 1904-05 was Dryden; for 1903-04, the Predecessors of Shakespeare. Previous topics have been: Browning; Carlyle, Ruskin, Arnold, and Newman; Tennyson; Coleridge; Lowell and Emerson; Chaucer; Milton; Shakespeare. The subject for 1905-06 is the Beginnings of the Romantic Movement. *Throughout the year; Tu.*, 4 *to* 6. Open to graduates and to properly qualified seniors. Professor FREEMAN and Assistant Professor DODGE.

MATHEMATICS

PROFESSOR VAN VELZER, PROFESSOR SLICHTER, ASSISTANT PROFESSOR SKINNER, ASSISTANT PROFESSOR DOWLING,* MR. WOLFF, MR. PERSONS, MISS ALLEN, MR. SMITH, MR. LEHMAN, MR. RASTALL MR. MORITZ, MR. PEOTTER, AND MR. GRIMES

The courses in Mathematics are divided into three groups, as follows:—

A. Courses 1 to 7 are planned to give a working knowledge of elementary mathematics. All courses are elective except courses 1 and 7, required of students in the Course in Commerce.

Students who elect the minimum amount of mathematics in fullfillment of requirement c (see requirements for degree of Bachelor of Arts), may choose six hours from any of the first five courses for which they are prepared, provided courses 1 and 3 are not both chosen.

Students electing mathematics with a view of teaching the subject in the high schools, will be expected to complete at least course 5, together with the courses that necessarily precede it.

It will be advantageous for all students expecting to elect mathematics to present at least ½ a unit of preparatory work in algebra in addition to the two units in mathematics required for entrance.

B. Courses 11 to 19 are designed for students who desire to continue mathematical study, and who have completed the requisite courses in group A.

*On leave of absence.

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C. Courses 20 to 37 are intended primarily for graduate students. They are designed to give some account of the various branches of modern mathematics.

Major in Mathematics

The requirements for an undergraduate major in mathematics are, in addition to the thesis, 32 semester hours, as a minimum, selected as follows: Courses 1, 2, 4, and 5 from group A, and at least 16 semester hours from group B.

For Undergraduates

1. Algebra. For students presenting one unit of algebra for entrance; prerequisite to all other courses in mathematics except 2. *Three hours a week for one semester.*

   First semester:

   Section 1, *M., W., F., at* 8. Miss ALLEN.
   Section 2, *M., W., F., at* 9. Miss ALLEN.
   Section 3, *Tu., Th., S., at* 9. Mr. SMITH.
   Section 4, *M., W., F., at* 10. Mr. SMITH.
   Section 5, *Tu., Th., S., at* 10. Mr. SMITH.
   Section 6, *M., W., F., at* 2. Mr. LEHMAN.
   Section 7, *M., W., F., at* 3. Mr. LEHMAN.

   For Students in the Course in Commerce

   Section 8, *Tu., Th., S., at* 8. Miss ALLEN.
   Section 9, *Tu., Th., S., at* 8. Mr. RASTALL.
   Section 10, *M., W., F., at* 2. Mr. RASTALL.

   Second semester:

   M., W., F., at 10. Professor VAN VELZER.

2. Trigonometry. Plane trigonometry and an introduction to spherical trigonometry; prerequisite to all other courses in mathematics except 1, 3, and 7. Open to all students who have had logarithms. *Three hours a week for one semester.*

   First semester:

   Section 1, *M., W., F., at* 10. Professor VAN VELZER.
   Section 2, *M., W., F., at* 10. Miss ALLEN.
   Second semester: Sections and instructors are the same as in sections 1 to 7 in course 1.

3. Algebra. For students presenting one and one-half units of algebra for entrance and elective to students who have taken course 1. Should be preceded by course 2 or taken along

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with it. *Three hours a week for one semester. First semester; M., W., F., at* 9; *second semester; Tu., Th., S., at* 10. Assistant Professor SKINNER and Miss ALLEN.

4. Analytic Geometry. Elementary course. Straight line conic sections, general equation of the second degree, transcendental curves, and an introduction to geometry of three dimensions. *Throughout the year; Tu., Th., at* 10. Professor VAN VELZER and Assistant Professor SKINNER.

5. Calculus. Elementary course. Differentiation and integration of functions of one variable with the usual geometric applications. *Throughout the year; M., W., F., at* 10. Professor VAN VELZER and Assistant Professor SKINNER.

7. Commercial Algebra. Required of students in the Course in Commerce. *Second semester; three hours a week,* at hours as in sections 8, 9, and 10 in course 1. Assistant Professor DOWLING, Miss ALLEN, and Mr. RASTALL.

For Undergraduates and Graduates

11. Calculus. Advanced. Partial derivatives and multiple integrals with the usual geometric applications. *First semester; Tu., Th., S., at* 9. Assistant Professor SKINNER.

12. Differential Equations. Ordinary and partial differential equations with a few geometric and mechanical applications. Murray's *Differential Equations* is used as a text. This course must be preceded by course 11 or be taken along with it. *Throughout the year; Tu., Th., at* 10, *F., at* 12. Professor VAN VELZER.

13. Theoretical Mechanics. An elementary course in analytical mechanics. This course may be taken by those who have had analytic geometry and calculus. *Throughout the year; M., W., F., at* 11. Professor SLICHTER.

14. Analytic Geometry of Two Dimensions. An advanced course dealing with modern methods in plane analytic geometry. Must be preceded by course 4. *Throughout the year; M., W., F., at* 9. Professor VAN VELZER.

15. Projective Geometry. Lectures based upon Reye's *Geometrie der Lage. Throughout the year; Tu., Th., at* 11. Miss ALLEN.

16. Analytic Geometry of Three Dimensions. This course should be preceded by course 11 or taken with it. *First semester; M., W., F., at* 8. Assistant Professor SKINNER.

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17. Quaternions. *Second semester, in alternate years; M., W., F., at* 12. (Omitted in 1906-07.) Assistant Professor SKINNER.

18. Theory of Probabilities. A course in this subject adapted to the needs of students of science and economics will be given occasionally. The mathematics of the freshman year is a prerequisite. *Either semester; twice a week.* Professor SLICHTER.

19. Differential Geometry. The application of the differential calculus to the geometry of twisted curves and surfaces. *Second semester in alternate years; M., W., F., at* 9. Assistant Professor SKINNER.

Primarily for Graduates

20. Elliptic Functions. This course must be preceded by course 12. *Throughout the year; M., W., F., at* 9. Assistant Professor DOWLING.

21. Theory of Functions. *Throughout the year; M., W., F., at* 9. Alternates with course 20. Assistant Professor DOWLING.

22. Newtonian Potential Function. Lectures and required readings on the theory of potential with an introduction to spherical harmonics. *Throughout the year; Tu., Th., at* 11. Professor SLICHTER.

23. Fourier Series and Spherical Harmonics. The theory of the solution of the fundamental equations of applied mathematics is developed, and application made to a variety of scientific problems. An harmonic analyzer of eighty elements is available for use in this course. *Throughout the year; Tu., Th., at* 12. Professor SLICHTER.

24. Advanced Projective Geometry. Continuation of course 15. Lectures based on Reye's *Geometrie der Lage. Twice a a week throughout the year.* Assistant Professor DOWLING.

25. Linear Differential Equations. A brief course introductory to the modern theory of linear homogeneous differential equations. *Second semester, in alternate years; M., W., F., at* 9. Assistant Professor SKINNER.

30. Theoretical Hydrodynamics. Lectures on fluid motion. *Twice a week for one year, in alternate years.* A course in the theory of elasticity may be substituted for this course. (Omitted in 1906-07.) Professor SLICHTER.

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32. Theory of Invariants. This course must be preceded by courses 3 and 11. *Second semester, in alternate years; M., W., F., at* 2. (Omitted in 1906-07.) Assistant Professor SKINNER.
33. Groups of Finite Order. *First semester, in alternate years; M., W., F., at* 12. Assistant Professor SKINNER.
34. Theory of Numbers. Congruences, quadratic residues, quadratic forms, etc. The work is based on Dirichlet's *Zahlentheorie. Throughout the year; Tu., Th., at* 11. Professor VAN VELZER.
35. Higher Plane Curves. Presented from the point of view due to Clebsch as it has been perfected by Brill and Noether. *Twice a week for one year.* Assistant Professor DOWLING.
36. Seminary Courses in Pure Mathematics. These courses vary from year to year according to the needs of students in the department. The aim is to make students acquainted with the literature of the subject under consideration, and to enable them to carry on research work. For 1906-07 the subject is: Selected chapters in the theory of plane curves. *Two hours a week.* Assistant Professor DOWLING.
37. Seminary Course in some subject in Applied Mathematics. *Two hours a week throughout the year.* Professor SLICHTER.

CHEMISTRY

PROFESSOR DANIELLS, PROFESSOR KAHLENBERG, PROFESSOR KREMERS, ASSOCIATE PROFESSOR LENHER, ASSISTANT PROFESSOR FISCHER, DR. KOELKER, MR. SHINN, DR. HALL, DR. SMITH, DR. HUTCHINS, DR. VOEGTLIN, MR. BENNER, MR. TIBBALS, MR. SIEVERS, MR. SAMMIS, AND MR. KRAUSKOPF

Primarily for Undergraduates

1. General Chemistry. Lectures and laboratory work. *Full study throughout the year.* Associate Professor LENHER. and assistants.
2. General Chemistry for Freshmen in the College of Engineering. *Two lectures, one recitation and one three-hour laboratory period a week throughout the year.* Associate Professor LENHER and assistants.

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3. General Chemistry. For students in Pharmacy; the laboratory work is especially designed for them. *Eight-fifths study for the first semester; three-fifths for the second semester.* Associate Professor LENHER and Mr. RABAK.

5. Research Work. Designed for students who desire to prepare a baccalaureate thesis in chemistry. Associate Professor LENHER.

6. Advanced Inorganic Chemistry. Required of students in Pharmacy. Course 3 is a prerequisite. *Full study during the first semester. Lectures and recitations, Tu., Th., F., at* 10. Professor KREMERS and Mr. SIEVERS.

10. Analytical Chemistry. Qualitative. *Throughout the year; with lectures and discussions once a week.* Professor DANIELLS, Mr. KRAUSKOPF, and Dr. VOEGTLIN.

10a. Qualitative Analysis. For students in Pharmacy. *Daily during the first half of the second semester.* Professor DANIELLS and Mr. RABAK.

12. Analytical Chemistry. For sophomore engineers. *Two laboratory periods a week. First semester,* qualitive analysis, Professor DANIELLS, Mr. KRAUSKOPF, and Dr. VOEGTLIN.

13. Quantitative Chemical Analysis. For engineers: continuation of course 11. The analysis of metals, ores, minerals, and economic products. *Three-fifths study throughout the junior year.* Professor DANIELLS and Dr. VOEGTLIN.

14. Water Analysis. For students in Sanitary Engineering. *Second semester; five-fifths study.* Professor DANIELLS.

15. Quantitative Analysis. For students in Pharmacy. *Daily during the second half of the second semester.* Professor DANIELLS and Mr. RABAK.

16. Toxicology, Urine Analysis, and Sanitary Water Analysis. Open only to those who have taken at least one semester of quantitative analysis. *Second semester, daily.* Professor DANIELLS.

17. Course for Teachers. This course consists of laboratory work, assigned reading, and conferences and discussions. Credit according to the amount of work done. A two-fifths credit towards the University teachers' certificate will be allowed students who have completed this course. Open to all who have completed three semesters of chemistry. Professor DANIELLS.

18. Alkaloid Assay. One fifth required of students in the phar-

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macy course during second semester. Additional work may be elected upon consultation. Assistant Professor FISCHER.

19. Adulterations of Food Stuffs. A chemical study which may be supplemented by course 16b in Botany. Assistant Professor FISCHER.

20. Organic Chemistry. Lectures and laboratory work. *Full study throughout the year.* In the first semester the work will be chiefly on the aliphatic, and in the second semester on the aromatic compounds. *Lectures, M., W., and six hours laboratory work.* Dr. KOELKER.

27. Advanced Organic Chemistry. Required of students in Pharmacy. *Full study during the second semester. Tu., Th., F., at* 10. Professor KREMERS and Mr. SIEVERS.

33. Physical Chemistry. For seniors who desire to prepare a baccalaureate thesis. Professor KAHLENBERG.

40. Plant Chemistry. A three-fifths study supplementary to Pharmacognosy (Botany 22.) *Recitation, M., at* 10. Professor KREMERS and Mr. SIEVERS.

50. Assaying. A course in practical assaying. *Second semester; hours to be arranged.* Associate Professor LENHER and Mr. TIBBALS.

For Undergraduates and Graduates

4. Chemical Preparations. Laboratory course in the preparation of typical inorganic compounds. *At least two periods a week.* Associate Professor LENHER.

11. Analytical Chemistry. Quantitative. *One lecture and four laboratory periods a week.* Professor DANIELLS.

21. Preparation of Organic Compounds. Laboratory course in the preparation of typical organic compounds. Dr. KOELKER.

22. Research in Organic Chemistry. Students desiring to become acquainted with the methods of research in organic chemistry may take work leading to senior theses or to theses for higher degrees. Dr. KOELKER.

23. Seminary in Organic Chemistry. Advanced students meet weekly to report on assigned topics relating to researches in organic chemistry. Dr. KOELKER.

24. Advanced Organic Chemistry. One lecture throughout the year on selected topics. In 1906-07 the subjects will be selected from the aliphatic series. Dr. KOELKER.

28. Chemistry of Alkaloids and their Assay. General survey

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course of the chemistry of alkaloids. *One lecture a week during the second semester.* Assistant Professor FISCHER.

29. Chemistry of the Volatile Oils, including their botanical relation and assay. *Work arranged upon consultation with the instructor.* Professor KREMERS.

30. Physical Chemistry. Lectures and recitations supplemented by laboratory exercises in physico-chemical measurements. Must be preceded by chemistry 1. *Full study throughout the year. Lectures and recitations. First semester, Tu., Th., at* 8; *second semester, W., F., at* 8. Professor KAHLENBERG and Mr. SHINN.

31. Electrochemistry. Lectures and recitations twice a week. Laboratory work in electrochemical measurements supplements the lectures, and with them makes a full study. *First semester; lectures: W., F., at* 8; *laboratory work throughout the year.* Professor KAHLENBERG and Mr. SHINN.

32. Thermal Chemistry. *Second semester; lectures: M., at* 8; *and one three-hour laboratory period a week.* Professor KAHLENBERG.

41. Plant Chemistry. Supplementary to plant physiology. *Three-fifths to five-fifths, either semester, or throughout the year.* Professor KREMERS.

42. Research Work. Special subjects for senior theses or graduate work on alkaloids, and the chemistry of foods. *Work to be arranged upon consultation.* Assistant Professor FISCHER.

43. Research Work. Special subjects for senior theses or graduate work on the chemistry of volatile oils or other subjects of organic chemistry, with special reference to plant chemistry. *Work will be arranged upon consultation.* Professor KREMERS.

44. Chemistry of Alkaloids and their Assay. General survey course of the chemistry of alkaloids. *One lecture a week during the second semester.* Assistant Professor FISCHER.

46. Adulterations of Food Stuffs. A chemical study which may be supplemented by course 16b in Botany. Assistant Professor FISCHER.

47. Research Work. Special subjects for senior theses or graduate work on the chemistry of volatile oils, of alkaloids, and on other subjects pertaining to pharmacy. *Work will*

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be arranged upon consultation. Professor KREMERS and Assistant Professor FISCHER.

48. Seminary in Plant Chemistry. The seminary will meet every other Wednesday at 4, for the discussion of topics of organic chemistry, with special reference to plant chemistry. Professor KREMERS and Assistant Professor FISCHER.

Primarily for Graduates

35. Advanced Physical Chemistry. Lectures on selected topics. In 1907 the lectures will be on the subject of solutions. *Second semester; Th., at* 8. Professor KAHLENBERG.

36. Advanced Electrochemistry. A course in the preparation of chemical compounds by means of electrolysis and the electric furnace. Weekly conferences accompany the laboratory work. *Full study throughout the year; hours to be arranged.* Professor KAHLENBERG and Mr. SHINN.

37. Research Work in Physical Chemistry. Students having sufficient training may take up research work in physical chemistry, for which every facility is furnished. This course is especially designed for graduates seeking higher degrees. *Full study throughout the year; hours to be arranged.* Professor KAHLENBERG.

38. Seminary in Physical Chemistry. Original articles of importance will be studied in detail, with a view to broaden and deepen the understanding and to act as a stimulus to further research. *At least once a week throughout the year.* Professor KAHLENBERG.

51. Advanced Inorganic Chemistry. Special attention is given to the discussion of modern theories of chemistry. *Lectures, M., W., at* 2. Associate Professor LENHER.

52. Inorganic Preparations. This course is preliminary for those intending to pursue research work in inorganic chemistry. *Laboratory work with one lecture or conference a week.* Associate Professor LENHER.

53. Research Work in Inorganic Chemistry. Full facilities are offered to those desiring to study systematically some of the more important problems in inorganic chemistry. Associate Professor LENHER.

54. Seminary in Inorganic Chemistry. Special topics in inorganic chemistry will be studied, reference being constant

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ly made to the original published matter. Associate Professor LENHER.

PHYSICS

PROFESSOR SNOW, PROFESSOR TROWBRIDGE, PROFESSOR MENDENHALL, ASSISTANT PROFESSOR TAYLOR, DR. INGERSOLL, MR. COLTON, MR. MILLER, MR. TERRY, MR. SPENCE, MR. SUYDAM, MR. WENIGER, MR. WETZEL, MR. WICKENDEN, MR. WILLIAMS, AND MR. WORTHING

Following the general lectures and introductory laboratory practice given in course 1, this department offers advanced work which may be divided into two general lines. Courses 2 to 7 are arranged for those who are desirous of obtaining a more special knowledge of some of the newer developments in physics, or for those who are preparing to teach. Especial emphasis is laid upon courses 2 and 3, which are teachers' courses, the aim here being to train the student in the clear presentation of this study, and to acquaint him with the details of manipulation of demonstrational apparatus. Courses 8 to 20 are designed for those who are preparing to do special work in physics, and for these courses an adequate mathematical preparation is a prerequisite.

Primarily for Undergraduates

1. General Lectures and Introductory Laboratory Practice. This course is open to election by all students, and may be taken without difficulty by those who have not had the mathematics of the freshman year. *A full study throughout the year.* Lectures: *M., Tu., W., Th., at* 12. Professor SNOW. One recitation by the class in smaller sections. Mr. COLTON. Laboratory practice, *twice a week at hours to be arranged.* Mr. MILLER, Mr. SPENCE, Mr. SUYDAM, Mr. WENIGER, Mr. WETZEL, Mr. WICKENDEN, Mr. WILLIAMS, and Mr. WORTHING.

For Undergraduates and Graduates

2a. Advanced Course of Experimental Lectures. Heat and Light. *First semester; M., W., F., at* 2. Professor MENDENHALL.

2b. Advanced Course of Experimental Lectures. Electricity and

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Magnetism. *Second semester; M., W., F., at* 2. Professor TROWBRIDGE.

Together with the accompanying laboratory practice (courses 3a and 3b), courses 2a and 2b are especially adapted to the needs of those expecting to teach. With this end in view, the lecture demonstrations are performed by the students before the class, thus giving each person practice in the presentation and illustration of special topics.

3a. Advanced Laboratory Practice. Heat and Light. *First semester; S.,* 9 *to* 1. Professor MENDENHALL.

3b. Advanced Laboratory Practice. Electricity and Magnetism. *Second semester; S.,* 9 *to* 1. Professor TROWBRIDGE and Mr. TERRY.

Courses 3a and 3b are designed to accompany courses 2a and 2b.

5. Hertzian Waves and Wireless Telegraphy. A non-mathematical course of experimental lectures. The fundamental experiments of Hertz will be demonstrated, the subjects of resonance and directing will be treated, and the present problems in space telegraphy will be discussed. *First semester; F., at* 4. Professor TROWBRIDGE.

6. Radio-activity. A course of experimental lectures open to those who have completed course 1 or 101, or their equivalents. *First semester; F., at* 4. (Omitted in 1906-07.) Professor TROWBRIDGE.

7. High Temperature Measurement. Recent developments in theory and practice will be considered, accompanied by laboratory practice with the various methods. *Second semester; one lecture and one laboratory period a week.* Professor MENDENHALL.

8a. Mathematical Physics. Theory of Electricity and Magnetism. *First semester; Tu., Th., F., at* 10. Professor TROWBRIDGE.

8b. Mathematical Physics. Special topics in physical optics: Theory of the grating, spectroscopy, and dispersion. The first part of Schuster's *Theory of Optics* is used as a text. *Second semester; M., W., F., at* 9. Professor MENDENHALL.

Courses 8a and 8b are extensions of courses 2a and 2b and are open to those who have taken these courses or their equivalents, and also a course in the differential and integral calculus.

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9. Thesis. At the beginning of the first semester, the student is expected, with the advice of the instructors, to take up some special line of investigation, to be conducted under the direction of those in charge of the department. *Full study throughout the year.* Professor TROWBRIDGE and Professor MENDENHALL.
10. Colloquium. This is an informal meeting of the advanced students and members of the department of Physics, for the critical reading and discussion of the current periodical literature. *Throughout the year; F., at* 5. Professor MENDENHALL.

Primarily for Graduates

All of the following courses presuppose an adequate working knowledge of the differential and integral calculus, and are open only to students who have completed the equivalent of courses 2, 3, and 8.

15. Elements of Theoretical Physics. This course, which includes the subject of elasticity, the kinetic theory, the potential function, and the conduction of heat, is designed for those who expect to devote but one year to graduate work, and is required of all candidates for the master's degree offering physics as a major study. *Throughout the year; M., W., F., at* 9. Dr. INGERSOLL.
16. Electricity and Magnetism. The treatment of this course is based on that given in Drude's *Physik des Aethers*, special attention being given to the subjects of electro-magnetism and the theory of electro-magnetic waves. *Throughout the year; M., W., F., at* 12. (Omitted in 1906-07.) Professor TROWBRIDGE.
17. The Electro-Magnetic Theory of Light. A rigid mathematical treatment of electro-magnetism, electric waves, and their relations to the phenomona of light. *Throughout the year; M., W., F., at* 9. Professor MENDENHALL.
18. Thermodynamics. The treatment in this course will be substantially the same as that given in Buckingham's *Thermodynamics*, with additional applications to problems of radiation. *Throughout the year; M., W., F., at* 10. (Omitted in 1906-07.) Professor MENDENHALL.
19. Graduate Research. This course is designed for those who have completed the equivalent of the laboratory practice represented by the undergraduate courses, and who now

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desire to devote some time to investigation in special lines. This work will be encouraged by reserving in the laboratory rooms which are devoted exclusively to research work, and by securing whatever special apparatus may be necessary to the successful carrying out of original investigation. Professor SNOW, Professor TROWBRIDGE, and Professor MENDENHALL.

20. Mathematical Introduction to the Electron Theory. Dynamics of the electron. Course 16 is a prerequisite, and courses 16 and 20 will be given in alternate years. *Throughout the year; M., W., F., at* 11. Professor TROWBRIDGE.

Engineering Courses

101. General Lectures and Introductory Laboratory Practice. This course is similar in many respects to course 1, but is more technical in its nature, and is particularly designed to meet the needs of the engineering students, of whom it is required. Lectures *M., Th., at* 5. Assistant Professor TAYLOR. Two recitations a week by the class in smaller sections. Mr. COLTON, Mr. TERRY, and Dr. INGERSOLL. Laboratory practice, *twice a week throughout the year.* Mr. MILLER, Mr. SPENCE, Mr. SUYDAM, Mr. WENIGER, Mr. WETZEL, Mr. WICKENDEN, Mr. WILLIAMS, and Mr. WORTHING.

104. Precision of Electrical Measurements. A laboratory course in the exact determination of electrical quantities. Required of juniors in Electrical Engineering, and elective for students in the other engineering courses. *First semester; twice a week.* Assistant Professor TAYLOR and Mr. TERRY.

105. Advanced Electrical Measurements. A laboratory course in the more difficult electrical measurements such as the comparison of self-induction, mutual induction, capacity, etc. Elective for those who have completed course 3 or 104. *Second semester; Tu., F., 2 to* 4. Assistant Professor TAYLOR and Mr. TERRY.

ASTRONOMY

PROFESSOR COMSTOCK AND ASTRONOMER FLINT

For Undergraduates

1. General Astronomy. A rapid survey of the fundamental concepts of astronomy. Given as a lecture course supple-

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mented by quizzes and examination upon an assigned text. *Throughout the year; Tu., Th., at* 12. Professor COMSTOCK.

2. Exercises in General Astronomy. Designed as a supplement to course 1 and open only to students who have completed, or are pursuing that course. A direct study of the sky through simple observations made independently by the student, but discussed in the class room. *Throughout the year; Th., at* 7:30 P. M., at the Washburn Observatory. Astronomer FLINT.

For Undergraduates and Graduates

13. Spherical Astronomy. Apparent motion of the celestial sphere. Astronomical coordinates and their transformation. Parallax. Refraction. Time. Use of the ephemeris. *First semester; M., W., at* 12. Professor COMSTOCK.

14. Practical Astronomy. Theory and use of the sextant, theodolite, transit, and equatorial. *Second semester; M., Tu., W., Th., 2 to* 4. Professor COMSTOCK.

16. Orbital Motion. The differential equations of undisturbed motion and their integrals. Computation of ephemerides. Orbits of double stars and comets. *Throughout the year; conference M., at* 11, *with assigned reading and computaence F. at* 11, *with two or four hours of laboratory work a week.* Professor COMSTOCK.

For Graduates

20. Perturbations. The general equations of disturbed motion. Special perturbations. Mechanical quadratures, with numerical applications. A continuation of course 16, and open only to students who have completed that course or its equivalent. Professor COMSTOCK.

22. The Method of Least Squares. The theory with application to numerical computations. *Throughout the year; conference F. at* 11, *with two or four hours laboratory work a week.* Professor COMSTOCK.

25. Research Courses. Graduate students and others desiring to pursue advanced astronomical studies will be received in the Washburn Observatory as assistants, and will take part in the regular series of observations with the equatorial telescopes or with the meridian instruments, at the same time continuing their theoretical studies. Facilities

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for independent original work will be afforded to such students, and their work, if of sufficient value, will be printed in the *Publications of the Washburn Observatory*. Eleven volumes of these *Publications* have already been issued.

For other courses of instruction consult the title Astronomy, in the announcement of the College of Engineering.

GEOLOGY AND MINERALOGY

PROFESSOR LEITH, PROFESSOR HOBBS, AND PROFESSOR FENNEMAN, MR. HOTCHKISS, AND MR. BLACKWELDER

For students who wish to take a general educational course in geology, no definite prerequisites are specified. It is, however, desirable that physics and chemistry be taken first. Students who have not had these sciences in college are advised to begin geology with course 4 (Physical Geography). If this be inconvenient, the professor in charge of General Geology should be consulted. All who have had physical geography in the University are allowed to take General Geology without other prerequisites. Physics and chemistry are required of all who make geology a major study. It is advised that they be taken before General Geology, but it is allowable to take at least one of them during the same year. Mineralogy also should be taken as early as possible.

Courses 8 to 22 are advanced courses, adapted for graduate students, or for students who have had at least one full year of geology and mineralogy.

President Van Hise, while offering no courses, will continue to initiate and direct the research work of advanced students. He will also lecture from time to time on subjects related to the work of the department.

Primarily for Undergraduates

1. General Geology. This course aims to give a clear understanding of the forces which are now modifying the earth's crust and which have brought it to its present condition. This involves an elementary survey of dynamic, structural, physiographic, and historical geology, and of minerals, rocks,

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and fossils, to show the student the nature of the field covered by geological study. Excursions are made to points in the vicinity where geologic forces and forms are well illustrated. *Five-fifths, first semester, at* 12. Professor LEITH and Mr. BLACKWELDER.

2. Applied Geology. This includes economic geology, principles of map interpretation, and field geology. Prerequisite, course 1. *Five-fifths, second semester.* The work is divided as follows: (a) Elementary survey of economic geology. *First six weeks of second semester; M., W., F., at* 12. Professor LEITH. (b) Principles of map interpretation. Laboratory study of topographic and geologic maps, involving the interpretation of structure and geologic history of the areas represented. *First six weeks of second semester; Tu., and Th., at hour to be arranged.* Mr. BLACKWELDER. (c) Field Geology. The study and mapping of selected areas adjacent to Madison. Involves preparation of complete topographic and geologic maps. The course includes a three-day trip to the Baraboo Ranges and the Dells of the Wisconsin river. *Twelve hours a week for the last twelve weeks of the second semester.* Professors FENNEMAN and LEITH and assistants.

4. Physical Geography. This course covers in a more technical way the customary field of physical geography, assuming, however, that the student is familiar with the subject as studied in high schools. Assigned readings are supplemented by lectures, laboratory work, and excursions. *First semester; M., W., F., at* 10. Professor FENNEMAN and assistants.

5. Physiography of the United States. This course presupposes a knowledge of physical geography. The United States is divided into regions on the basis of topography and geological history. Each region is studied separately. The several topographies, soils, climates, mineral and other resources are treated in their physical relations and as conditions affecting habitation. *Second semester; M., W., F., at* 10. Professor FENNEMAN and assistants.

6. General Course in Mineralogy. Prerequisite, a general course in chemistry. Trigonometry should be taken if possible. The course is concluded by a brief treatment of the characteristics of rocks and their geological field classification.

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Throughout the year; M., Tu., W., Th., F., at 11. Professor HOBBS and Mr. HOTCHKISS.

7. Short Course in Mineralogy. Determinative mineralogy and blow-pipe analysis. This course is elective for civil engineers and long course students in geology and mineralogy. *Tu., Th., 2 to* 4. Professor HOBBS and Mr. HOTCHKISS.

For Undergraduates and Graduates

8. Optical Mineralogy. Lectures, quizzes, and laboratory work with the polarizing microscope. A prerequisite to petrology. *First semester; M., W., F.,* 9 *to* 11. Professor HOBBS and Mr. HOTCHKISS.
9. Field Petrology. The characteristics of rocks and their classification as adapted to field work. The course is taken in connection with courses 6 and 10 by all students who pursue special work in geology. *Second semester; Tu., Th.,* 9 *to* 11. Professor HOBBS and Mr. HOTCHKISS.
10. Microscopic Petrology. The study of rocks as mineral aggregates with the aid of the petrographical microscope. Course 8 is a prerequisite to this course. *Second semester; M., W., F.,* 9 *to* 11. Professor HOBBS and Mr. HOTCHKISS.
11. Economic Geology. Emphasis is placed on the occurrence, origin, and development of metallic minerals, involving a summary of the principles of metamorphism and ore deposits given in course 15. Excursions are taken to iron, copper, lead, and zinc districts accessible from Madison. The course includes also a study of water, building materials(of mineral origin), soils, coal, petroleum, natural gas, and minor non-metallic mineral products. Illustrations of most of the subjects are found within the field accessible to the class. Chemistry 1, Mineralogy 6, and Geology 1 and 2 are prerequisites for this course. *Throughout the year; M., W., F., at* 4. Given in alternate years with course 15. Professor LEITH.
12. Historical Geology. A detailed study of the geologic history of the earth with special reference to the North American continent. The geology of foreign countries will be briefly sketched for the sake of comparison. An important phase of the course will be the consideration of the development of life during the past geologic ages. Groups of typical fossils will be studied in connection with the respective

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periods which they represent. Prerequisites, courses 1 and 2. *First semester; M., Tu., W., Th., F., at* 9. Mr. BLACKWELDER.

Primarily for Graduates

14. Principles of Structural Geology. The behavior of rocks under fracture and flowage, requiring the discussion of joints, faults, folds, and cleavage, from field, experimental, and mathematical standpoints. For this course there is accessible an unequalled collection of specimens and slides illustrating structural features belonging to the pre-Cambrian and Metamorphic Division of the U. S. Geological Survey. *Lectures and laboratory work. First semester; Tu., Th., at* 4. Professor LEITH.

15. Metamorphism. Principles and their application principally to the deposition of ores. The course is based largely on an exhaustive monograph on this subject by President Van Hise. *Lectures and laboratory work. Throughout the year; M., W., F., at* 4. Alternates with course 11. Professor LEITH.

16. Metamorphic Rocks. A laboratory course. With special reference to description and classification under the principles of metamorphism of courses 11 and 15. *Throughout the year; Tu., W.,* 2 *to* 4. Professor LEITH.

17. Principles of Pre-Cambrian Geology. This course treats of the pre-Cambrian stratigraphy of North America and with the problems of correlation, structure and metamorphism to be met in the study of the ancient crystalline rocks. U. S. Geological Survey specimens and slides from all the principal areas of pre-Cambrian rocks of North America are available for study. Alternates with course 18. *Second semester; Tu., Th., at* 4. Professor LEITH.

18. Lake Superior Geology. A course offered because of the scientific and commercial importance of the Lake Superior region, and the intimate relations of this department to its development. The U. S. Geological Survey Monographs on the Lake Superior region are used as texts and the original specimens, slides, and charts described in the monographs are at the disposal of the students. At the close of the course in the spring, an excursion is made to points of geologic and economic interest in the Lake Superior coun-

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try. Given in alternate years with course 17. *Second semester; Tu., Th., at* 4. Professor LEITH.

19. Advanced Petrology. Prerequisite to this course are courses 8, 9, and 10. Emphasis is laid upon the quantitative classification of igneous rocks, and the methods of investigation necessary to determine the place of a given rock in the system. *Three-fifths or full credit as arranged.* Professor HOBBS and Mr. HOTCHKISS.

20. Advanced Crystallography. Mineralogy 6 is a prerequisite. *Three-fifths or full credit as arranged.* Professor HOBBS and Mr. HOTCHKISS.

21. Areal Physiography. The study of assigned areas, their physiographic histories, boundary lines, classification, and subdivision. Work is at present being done in this course without regularly appointed lecture hours, and the amount of credit for each student is determined at the close of the semester. Professor FENNEMAN.

13. Systematic Paleontology (Invertebrates). Study of the invertebrate groups which are important as fossils, with special reference to the life of the Paleozoic era. One lecture a week supplemented by laboratory study of specimens. Prerequisites, course 12 and elementary zoology. *Second semester; three-fifths.* Mr. BLACKWELDER.

22. Research Work. Offered by the members of the department in continuation of their respective courses. President Van Hise will assist in the direction of this work. The amount of time that can be allotted is subject to special arrangement.

23. Geological Seminary. Subjects under investigation by the members and students of the department, and reviews of important publications are discussed. *F., at* 5.

METEOROLOGY

MR. BARTLETT OF THE U. S. WEATHER BUREAU

For Undergraduates and Graduates

1. Elementary Meteorology. The properties and phenomena of the earth's atmosphere, including barometric pressure, temperature, precipitation, fog, dew, frost, clouds, the general circulation of the atmosphere, and general and local storms.

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Explanation of the meteorological apparatus in use at the Weather Bureau office, and instruction in its use. Problems in observing the weather elements. Instruction and practice work in taking and recording weather observations, in correlating weather elements, in preparing weather maps, and in the use of the maps in making forecasts and warnings. *First semester; three times a week.*

2. Advanced Meteorology and Climatology. The climatic elements. Solar or mathematical climate. Physical climate, including continental, marine and mountain climates. Snow-line and glaciers, mountain and valley winds, foehn, sirocco, bora, and mistral. Mountains as climatic barriers. Geological and secular changes of climate. Periodic variations of climate. Especial attention will be given to the study of the climate of the United States. *Second semester; three times a week.*

Designed for students who have taken the elementary course.

BIOLOGY

THE BIOLOGICAL DEPARTMENTS

Study in the biological sciences is conducted in the independent, though coordinated departments of Zoology, Botany, Anatomy, Physiology, and Bacteriology and Hygiene. The purpose of these departments is to offer the fullest possible facilities for the study of biological problems. In the department of Botany the structure, physiology, classification, and pathology of plants, and the fundamental problems of cell structure and functions are studied, as well as the direct application of the science to pharmacy and agriculture. In the department of Bacteriology microorganisms are first studied from the general biological point of view, and, in the advanced courses, attention is devoted to the applications of bacteriology, especially to medicine, sanitation, and agriculture. In the department of Zoology the broader problems of animal life are considered, as well as the special anatomy, physiology, and life history of invertebrates. In the department of Anatomy the development, and the gross and microscopic structure of the lower vertebrates and man are taken up, both in their more general scientific aspects, and in reference to the special needs of students preparing for practical medicine. In the physi-

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ological department (which will be open for work in September, 1906) physiology and physiological chemistry will be pursued from a similar point of view.

In these various departments ample facilities are offered both to those who desire some knowledge of biology as a part of a liberal education, and to those who wish to prepare themselves for teaching, for the study of practical medicine, or for biological investigation.

The departments of Botany and Zoology offer in the course in general biology (Biology 1) opportunity for the study of the broader features of the structure and life history of plants and animals. The departments of Anatomy and Physiology will offer next year a course in human anatomy and physiology, intended especially for those who wish a general knowledge of the subjects, or who expect to prepare themselves to teach physiology in the high schools. In the department of Bacteriology a laboratory course is offered in general bacteriology, and a briefer course in communicable diseases and hygiene.

For the higher work in the departments mentioned above the course in general biology (Biology 1) is a prerequisite. Each department offers a series of graded courses so arranged as to meet the needs of advanced students in various lines. Ample opportunity for research is offered those capable of undertaking original investigation. This work is encouraged by the Biological Club in which all the departments participate, as well as by special seminaries held by the various departments.

The Madison lakes give this university peculiar advantages for biological work. Science Hall is located only a few hundred feet from Lake Mendota, and abundant apparatus is available for the collection and study of the lake fauna. The facilities of the Wisconsin Geological and Natural History Survey are also available at all times. The libraries of the University and the Wisconsin Academy of Sciences afford exceptional advantages in the way of literature. The number of sets of important journals has been greatly increased within recent years, so that at present most of the important biological journals are being taken.

Primarily for Undergraduates

1. General Biology. Introductory to botany, zoology, and anatomy, and required as a preliminary to all advanced work in these departments. *Two recitations or lectures and four*

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laboratory periods a week. Lectures M., and W., at 3. Professor HARPER and Assistant Professor HOLMES.

For laboratory work the class is divided into sections, each meeting for two hours daily. Associate Professor MARSHALL, Assistant Professor HOLMES, Assistant Professor ALLEN, Mr. WAGNER, Mr. MARQUETTE, Mr. VOORHIES, Mr. REED, Mr. CLAWSON, Miss SANDS, and Mr. LUTMAN. Quiz divisions are required to meet once a week.

The first semester is devoted to a study of the general principles of biology as illustrated by plants. The second semester is devoted to zoology. Students can enter the course in either semester.

ZOOLOGY

PROFESSOR BIRGE, ASSOCIATE PROFESSOR MARSHALL, ASSISTANT PROFESSOR HOLMES, MR. WAGNER, MR. VOORHIES, AND MR. CLAWSON

The courses in Zoology are designed to give the student a thorough acquaintance with the facts of the science and the fundamental problems of biology, so that he may be well equipped either for teaching or investigation. The department possesses a good collection of animals, especially invertebrates, both for morphological and systematic work. It is exceptionally well provided with sets illustrating life histories, mimicry, and seasonal and sexual dimorphism. There are numerous sets of models by Ziegler and others illustrating the development of organisms, and a large collection of Blatschka models of invertebrates. There is also a good and rapidly increasing collection of the fauna of the State. The laboratories are well supplied with apparatus, and the facilities of the Wisconsin Geological and Natural History Survey are available at all times. The preparation for, and encouragement of, research receive especial attention, and ample facilities are afforded the student who wishes to take up any line of investigation.

A journal club meets for the discussion of recent zoological literature.

For Undergraduates and Graduates

2a. Invertebrate Zoology. A discussion of the structure, development, classification, instincts, and life histories of invertebrate animals. Occasional field excursions will be made, and especial attention will be paid to the local fauna. In-

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vertebrate zoology is a year's course, but it is so divided that the two parts come in the first semester of alternate years. Either half of the course, however, may be taken independently of the other. This course which is devoted to the lower invertebrates, the Protozoa, Coelenterata, Vermes, Mollusca, and some smaller groups will be given in 1906-07. *First semester. Lectures M., W., at* 10. *Three laboratory periods a week.* Assistant Professor HOLMES.

2b. A continuation of course 2a devoted to the higher invertebrates, the Crustacea, Arachnida, Myriapoda, Insecta, Echinodermata, and Tunicata. *Second semester. Lectures; M., W., at* 10. *Three laboratory periods a week.* Assistant Professor HOLMES.

4. Vertebrate Zoology. A study of the structure, physiology, habits, classification, and distribution of vertebrates. This course will cover for the vertebrates the same general ground discussed in course 2. It deals with a quite different field from that covered in course 5 in Anatomy and may advantageously be taken in connection with the latter course. *Second semester. Lectures; Tu., Th., at* 8. *Laboratory and field work three periods a week. Five-fifths credit.* Mr. WAGNER.

5. Organic Evolution. A series of lectures on the evidences for and general bearing of the theory of organic evolution. These lectures require no previous biological work, and are open to all students beyond the freshman year. *First semester; Th., at* 7 P. M. Assistant Professor HOLMES. Other lecturers will also take part in this course.

6. Heredity. A discussion of the facts and theories of the nature and method of heredity, and their relation to other problems, biological and sociological. The work will be carried on in part as a lecture course and in part as a proseminary. *First semester; two hours a week, at hours to be arranged.* Mr. WAGNER.

7. Evolution Problems. A critical discussion of the theory of organic evolution, and the general development of evolutionary speculation since Darwin. Lectures and reports on assigned topics. Open to advanced students of biology and others who may be especially qualified to carry on the work. *Second semester; Tu., and Th., at* 2. Assistant Professor HOLMES.

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9. Entomology. A general course dealing with the anatomy, embryology, classification, and life histories of insects. *Second semester. Lectures. Tu., and Th., at* 10. *Three laboratory periods.* Associate Professor MARSHALL.

10. Animal Parasites. The structure and life history of animal parasities, with especial reference to those of man. Lectures and laboratory work. *First semester. Four-fifths credit.* Associate Professor MARSHALL.

17. Bionomics. It is the aim in this course to consider the habits and activities of animals in relation to their environment. An effort will be made to discuss the present state of our knowledge on the following points: The relation of animals to moisture, heat, and light, the supply of oxygen, and the nature of the substratum; migration; the fauna of the water, its nature, distribution and movements; and the general questions of geographical distribution. This course should be preceded by courses 2 and 4. *One lecture a week at hour to be arranged. Laboratory and field work twice a week. First semester; three-fifths credit.* Mr. WAGNER.

18. Morphogenesis. A discussion of the results of experimental work upon the development and regeneration of organisms, and the general theories of development and regeneration. Open to advanced students of biology. *One lecture a week during the first semester.* Assistant Professor HOLMES.

20. Teachers' Course. A consideration of the aims, methods, and subject matter of zoological instruction in the schools. *One lecture or conference a week during the first semester.* Assistant Professor HOLMES.

23. Entomology. Advanced work for students who have finished course 9 and desire to continue some special line of work or investigation. *Throughout the year.* Associate Professor MARSHALL.

28. Research Work. Special work for advanced students under different members of the staff. Special problems will be assigned, and students prepared for independent investigation will be given all the opportunities available for carrying on their work.

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BOTANY

PROFESSOR HARPER, ASSISTANT PROFESSOR ALLEN, DR. DENNISTON, DR. OLIVE, DR. OVERTON, MR. MARQUETTE, MR. REED, MR. LUTMAN, MISS ALLEN, AND MISS SANDS

For Undergraduates and Graduates

2. Plant Morphology. Algæ and fungi. Course 1 is a prerequisite to this course. The morphology of types of the principal groups will be studied in the laboratory. The lectures will give an outline of the development of the different series and their classification and will also discuss problems of research in connection with the different groups. *First semester; M., W., F., 2 to 4; Tu., Th., 2 to 3.* Lectures, *Tu., Th., at 3.* Professor HARPER and Dr. OLIVE.
3. Plant Morphology. Liverworts, mosses, ferns, equisetum, and lycopods. A continuation of course 2. *Two-fifths study during the second semester; M., Tu., 2 to 4.* Lecture, *Tu., at 3.* Professor HARPER and Mr. REED.
4. Plant Morphology. The flowering plants. A study of the life histories of a few types of flowering plants, including the phenomena of pollination, fertilization, development of organs and tissues, and discussions of morphological homologies and allied developmental problems. *Second semester; W., Th., F., 2 to 4;* lecture, *Th., at 3.* Assistant Professor ALLEN.
5. Vegetable Histology. A systematic study of the tissues of phanerogams and ferns. Use of reagents and stains, section cutting, and mounting. Required of all students in pharmacy. *Three-fifths study, first semester.* Dr. DENNISTON and Mr. LUTMAN.
6. Physiology of the Flowering Plants. A laboratory course on the special physiology of the vascular plants. *Second semester; five-fifths study.* Professor HARPER and Dr. OVERTON.
7. Cytology. General physiology of organisms. Lectures and experimental work on the reproduction, irritability, and nutrition of the cell. Must be preceded by courses 2, 3, and 4, and an ability to read German is desired. *Daily; hours on consultation.* Professor HARPER with Dr. OVERTON, *first semester*, and Mr. MARQUETTE, *second semester.*
8. Mycology. Special work on the morphology and classification

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of the fungi is offered to advanced or graduate students. *Hours on consultation.* Professor HARPER.

9. Plant Pathology. A laboratory course on the diseases of plants. Especial attention is given to the methods of infection, effect on the host plant, etc., of the fungi which cause diseases of garden crops, cereal grains, etc. *Hours on consultation.* Professor HARPER and Mr. REED.

10. Diseases of Trees. A special course of lectures and laboratory work on the diseases of economically important forest trees, and the causes of decay in timber used for building and other purposes. The lectures may be taken without the laboratory work. *Two-fifths study, second semester. Hours on consultation.* Assistant Professor ALLEN.

11. Bryology. Special work on the morphology and classification of the bryophyta is offered to advanced or graduate students. This course must be preceded by courses 2, 3, and 4, or their equivalent. *Hours on consultation.* Assistant Professor ALLEN.

12. Dendrology. A study of the structure and characteristics of forest trees. Lectures, laboratory, and field work. Open to those who have had the equivalent of one semester's work in general botany. *Two-fifths study; second semester.* Dr. DENNISTON.

13. Botanical Methods. Practice will be given in methods of preparing plant material and of growing various algæ and fungi for use in the class room. Opportunity will also be given for collecting and preserving material for laboratory courses. Open to students who have had courses 1 and 4. *Two-fifths study; second semester.* Professor HARPER and Miss ALLEN.

14. Hybridization, Parthenogenesis, and special problems in the fertilization of the angiosperms. The course deals with some of the more fundamental principles of plant breeding. *First semester; two-fifths study.* Dr. OVERTON.

15. Physiological Seminary. For the study of special subjects in general physiology, and for the presentation of the results of investigation. Professor HARPER.

16. Research Work. Students whose preparation is adequate may on consultation be assigned special subjects of investigation. *Daily.* Professor HARPER.

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17. Facts and Theories of Heredity. A critical discussion of the more significant theories of heredity, in the light of the results of recent experimental and cytological investigations. Course 1 or its equivalent is a prerequisite. *Second semester; two lectures a week.* Assistant Professor ALLEN.

18. Algology. Special work on the morphology and classification of fresh-water and marine algae is offered to advanced or graduate students. This course must be preceded by courses 1, 2, 3, and 4, or their equivalent. *Hours on consultation.* Assistant Professor ALLEN.

19. New and less known Fungi. A detalled account of the morphology and development of some of the less known fungi, together with a discussion of the unsolved problems concerning them. *Second semester; two lectures a week.* Dr. OLIVE.

20. Morphology and Classification of the Flowering Plants. An elementary course designed primarily for pharmacy students, but open to others who desire to begin the study of botany. The life histories and ecology of seed plants, with a comparative study of the principal families, and the identification of common species. Field work will be an important feature. Excursions on Saturdays. *M., Tu., W., Th., F.,* 8 *to* 10; *second semester.* Dr. OLIVE and Mr. REED.

21. Microscopical Examination of Drugs and Food Products. The object of this course is to study and illustrate the methods of identifying powdered drugs and food products, and detecting adulterations. *Three-fifths study; second semester.* Dr. DENNISTON.

22. Pharmacognosy. This course presents to the student the main facts of the natural history of drugs, and the plants producing them. Required of all students in pharmacy. Text book, Culbreth's *Materia Medica. Twice a week; throughout the senior year.* Dr. DENNISTON.

23. Laboratory Work. For three-year or four-year pharmacy students. The course consists in a study of the microscopic structure and characteristics of further types of drugs. Required of all seniors. *Three-fifths study during the first semester of the senior year.* Dr. DENNISTON.

24. For Pre-Medical Students. An abridgement of the work given to pharmacy students is offered for those intending to study medicine. As far as may be, the methods used are

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those detailed for the foregoing courses. No drug collection is required and no microscopic study is expected. Two lectures and two hours' laboratory work per week. *Three fifths during the first semester.* .Dr. DENNISTON.

25. The Collection and Commerce of Crude Drugs. Laboratory and field work supplemented by lectures and recitations. *One-fifth during the first semester of the junior year.* Dr. DENNISTON.

26. Research Work. Anatomy or the taxonomy of seed-plants and ferns. Special subjects for original investigation will be assigned to advanced or thesis students. Dr. DENNISTON.

ANATOMY

PROFESSOR BARDEEN, ASSOCIATE PROFESSOR MILLER, DR. ALLEN, AND DR. CRAWFORD

A group of courses intended to offer a comprehensive view of the gross and microscopic anatomy and the embryology of vertebrates with special reference to man, is given in this department. In addition, opportunities are afforded for advanced work and research in anatomy.

There are laboratories devoted to human anatomy, vertebrate anatomy, histology, and embryology. The histological laboratory is provided with a full equipment of microscopes, microtomes, and the various stains and reagents. For illustrating the lectures in histology there are a large number of models, wall charts, and an extensive set of lantern slides to which additions are being constantly made. For the work in embryology a similar equipment is provided. For the study of human anatomy a supply of well preserved material is maintained. A large number of models by Steger of Leipzig, Tramond of Paris, Ziegler of Freiburg, Auzoux of Paris, and other well-known firms are provided to assist the student in his work. Each student has the use, under proper restrictions, of these models and of skeletons, articulated and disarticulated skulls, ligament preparations, frozen sections, etc.

For those prepared to carry on advanced research special laboratory facilities are provided.

A Journal Club meets bi-weekly for the discussion of important contributions to anatomical science.

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For Undergraduates and Graduates

5. Comparative Anatomy of Vertebrates. A series of seven animals is dissected for the study of vertebrate structure, and numerous demonstrations are given of the structure of related forms. Only those who have had a training equivalent to that given in Biology 1 are admitted to this course. *Throughout the year; M., Tu., W., Th., F., 2 to 4.* The work of either or both semesters may be taken. Dr. ALLEN.

10. Histology and Organology. The study of the tissues, histology, is first taken up, and this is followed by the study of the minute structure of the chief mammalian organs in the following order: the blood and blood-forming organs, the organs of circulation, digestion, and respiration, the genito-urinary organs, the skin and its appendages. Open only to those who have taken or are taking course 5 or its equivalent. *First semester; M., Tu., W., Th., F., 9 to 11.* Associate Professor MILLER.

15. Vertebrate Embryology. The development of the frog, chick, and pig are studied by means of dissection and the use of microscopic preparations. Human embryology is studied from sections, special preparations, and models. Open only to those who have taken course 10 or its equivalent. *Second semester; M., Tu., W., Th., F., 9 to 11.* Professor BARDEEN.

17. Problems of Vertebrate Embryology. This course involves a study of: (a) The development, structure, and physiological relations of the sex-cells; (b) Early stages in the development of the embryo under normal and experimental conditions. Current theories of inheritance and regeneration will be discussed. *Second semester; M., W., F., 11 to 1.* Dr. ALLEN.

21. Human Anatomy. In this course a thorough training is offered in the dissection of the human body, and in descriptive human anatomy. The course is open only to those who have had course 5 or its equivalent. *October 1 until April 16; M., T., W., Th., F., 2 to 5.* Professor BARDEEN and Mr. CRAWFORD.

23. Special Human Anatomy. Those qualified to do independent work may make arrangements for the study of human anatomy at other periods than those covered by course 21.

26. Neurology. This course consists of dissections of the sheep's brain and the human brain, and a study of the

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microscopic anatomy of the central nervous system and sense organs. Open only to those who have taken courses 5, 10, and 15 or their equivalents. *April* 16 *to the end of the year; M., Tu., W., Th., F.,* 2 *to* 5. Associate Professor MILLER.

30. Advanced Work in Anatomy. Opportunity for advanced study in the field of human and comparative anatomy, gross and microscopic, in embryology and experimental morphology, and in laboratory technique is offered to properly qualified students. This work will be done under the direction of the various members of the staff.

Primarily for Graduates

35. Investigation under Direction. To qualified students the department is prepared to offer problems for investigation and training in methods of research. Special arrangements for this work may be made with the individual members of the staff.

40. Independent Investigation. The department will welcome independent investigators who wish to make use of its facilities for conducting research in anatomy.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR ERLANGER*

Primarily for Undergraduates

1. Elementary Physiology. In conjunction with the department of anatomy, an elementary course is offered in human anatomy and physiology. It is intended for those who wish a general rather than a highly technical knowledge of these subjects, and is open to all students except freshmen. *First semester; M., W., F., at* 11. Professor BARDEEN and Professor ERLANGER.

For Undergraduates and Graduates

The following courses are designed especially for students intending to study medicine or to teach the biological sciences, and are open only to those who have had a previous training in general and organic chemistry (courses 1 and 20), physics (course 1),

*An instructor and an assistant are to be appointed.

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general biology (course 1), comparative anatomy, histology, and neurology, (anatomy 5, 10, and 26).

4. Physiological Chemistry. (a) Lectures. These will consist of a brief summary of the entire province of physiological chemistry. (b) Laboratory course. This will include the chemistry of various substances, such as proteids, which are usually not familiar to the student of pure chemistry, a chemical study of most of the tissues and fluids of the body, and a study of those physiological-chemical processes that can be closely imitated outside the body, special emphasis being laid on such enzymic processes as salivary, pancreatic, and gastric digestions. The course also includes a quantitative analysis of urine (normal and pathological), milk, gastric juice, stomach washings, and foods, and an examination of the faeces with especial reference to putrifactive processes. (c) Conferences are held for the discussion of the laborafory work, and for the consideration of the progress and needs of the students. *Second semester until April* 30; *M., Tu., W., Th., F.,* 2 *to* 5. *Five unit-hours.*

5. Physiology. The following subjects are considered: Muscle and nerve, central nervous system, special senses, blood, circulation, respiration, secretion, digestion, and nutrition. (a) Lectures. (1) Preliminary course. *May* 1 *to end of the year. M., Tu., W., Th., F., at* 12. Two unit-hours. (2) Continued course. *First semester; M., Tu., W., Th., F., at* 9. Five unit-hours. (b) Laboratory work. The preliminary course of lectures must precede, and the continued course of lectures be taken in conjunction with or precede the laboratory work. *First semester until the Christmas recess; Tu., W.,* 10 *to* 1. Two unit-hours. Professor ERLANGER and assistant.

Primarily for Graduates

8. Advanced Laboratory Course in Physiology. This course is designed primarily for teachers of animal physiology, and consists mainly of experiments demonstrated in course 5. The time or amount of work is not limited, except that assistance must be arranged for by definite engagements The instruction is given individually, and may involve undertaking a definite investigation. Professor ERLANGER.

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10. Advanced Laboratory Course in Physiological Chemistry. This course corresponds to course 8.
12. Journal Club. Advanced students are expected to report from time to time upon papers of physiological and physiological-chemical interest that may appear in the current journals. *One hour a week throughout the year.*

BACTERIOLOGY AND HYGIENE

PROFESSOR RUSSELL, ASSISTANT PROFESSOR FROST, ASSISTANT PROFESSOR HASTINGS, AND DR. FULLER

For students desiring a general laboratory course in Bacteriology course 1 should be taken. Chemistry and General Biology should precede this work. On the basis of this general course, the student is then able to take up special work in Medical (course 2), Sanitary (course 8), Dairy (course 16), Agricultural (course 17), Home Economics (course 9), Bacteriology. Course 1 followed by courses 2, 9, 16, or 17, are prerequisites for major work in bacteriology.

Primarily for Undergraduates

1. General Bacteriology. A general survey of the entire field of bacteriology from the biological point of view. The course is a prerequisite to specialization in applied lines, as Medical, Sanitary, or Agricultural Bacteriology. Required of junior students of the College of Agriculture. Lectures, *M., W., F., at* 11; Laboratory work, 11 *to* 1 *and* 2 *to* 4. *First semester.* Professor RUSSELL, Assistant Professor FROST, and Dr. FULLER.
2. Medical Bacteriology. This course, which is especially designed for pre-medical students, considers the bacteria that are especially concerned in the production of disease processes. Course 1 is a prerequisite. Lectures, *M., W., F., at* 11, and laboratory work. *Second semester.* Assistant Professor FROST and Dr. FULLER.
6. Communicable Diseases: Their Cause and Prevention. Weekly lectures of a non-technical character. No previous work in science is required. *Second semester. One-fifth credit.* Alternates with course 7.
7. General Hygiene. A course of lectures dealing with the hygienic aspects of air, water, and food supplies, and the

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disposal of sewage. *Second semester; one-fifth study.* (Omitted in 1906-07.) Assistant Professor FROST.

8. Biology of Water Supplies. Lectures and laboratory work. *First semester. Three-fifths credit.* Required of juniors in Sanitary Engineering. Assistant Professor FROST.

9. Bacteriology for Students in Home Economics. Lectures, recitations, and laboratory work. The bacteria will be studied in their relation to the home and its environment. The course includes work on the various fermentations, and on the sanitary aspects of the subject. Course 1 is a prerequisite. *Three-fifths credit. Second semester.* Assistant Professor FROST.

10. Demonstration Course in Bacteriology for Teachers. This will consist in the performance of simple exercises to illustrate the methods of growing, examining, and studying the bacteria, and their distribution in various substances, as air, soil, and water. Intended especially for students preparing to teach science who wish to introduce a brief consideration of bacteria into the subjects of botany or physiology in the high schools. This must be preceded or accompanied by courses 6 or 7. *Two hours a week; second semester. One-fifth credit.* Assistant Professor FROST.

16. Dairy Bacteriology. Study of bacteria in relation to dairy processes, including the production of milk, butter, and cheese; also action of disease bacteria in milk. Lectures, assigned literature, and laboratory work. *Second semester. Five-fifths credit.* Professor RUSSELL and Assistant Professor HASTINGS.

17. Agricultural Bacteriology. Embraces a consideration of bacteria as applied to agricultural processes, including their relation to soils, bacterial diseases of plant and animal life, and dairying. Lectures and laboratory work. *Second semester. Five-fifths credit.* Professor RUSSELL and Assistant Professor HASTINGS.

3. Thesis Work in Bacteriology. Students who desire to select their theses in this department must take course 1 in their junior year or before, and if the subject is selected in any other than general biological lines, the special work in medical, sanitary, or agricultural bacteriology, respectively, should be taken in the second semester of the junior year. The subject should be selected before the close of the junior

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year. Professor RUSSELL and Assistant Professors FROST and HASTINGS.

For Undergraduates and Graduates

4. Topical Work in Bacteriology. Students who have had sufficient preliminary work (course 1 and course 2, 9, 16, or 17 or their equivalent) will be assigned special topics for study. Laboratory work and conferences. Professor RUSSELL and Assistant Professor FROST.

11. Immunity. Includes a study of the phenomena and theories of immunity in general as well as of the various infectious diseases. Lectures and reports. Open only to advanced students. *First semester. One-fifth credit.* Assistant Professor FROST.

12. Pathogenic Protozoa. This includes a study of the most important of the protozoa known to cause human and animal diseases. Open only to advanced students. Lectures, demonstrations and reports. *Second semester. One-fifth credit.* Assistant Professor FROST.

Primarily for Graduates

5. Research Work in Bacteriology. Opportunity is offered for work in original investigation, which may be arranged for on consultation. A reading knowledge of French and German is necessary. Professor RUSSELL, Assistant Professor FROST, and Assistant Professor HASTINGS.

18. Bacteriology of Special Dairy Problems. Exceptional opportunities are offered for a combination of laboratory work with the practical problems relating to the production of milk and its manufacture in the dairy. Laboratory work, assigned literature, and conferences. *Throughout the year.* Given in the College of Agriculture. Professor RUSSELL and Assistant Professor HASTINGS.

19. Bacteriology of Animal Diseases. Special problems on bacterial diseases of animals. Laboratory work, assigned literature, and conferences. *Throughout the year.* Given in the College of Agriculture. Professor RUSSELL and Assistant Professor HASTINGS.

The Bacteriological Journal Club meets bi-weekly on Thurs-

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days for the review of current bacteriological literature. Students taking advanced work in bacteriology are expected to attend.

PHARMACY

ASSISTANT PROFESSOR FISCHER, MR. RABAK, AND MR. DU MEZ

Primarily for Undergraduates

1. Laboratory Technique. The principles and practice of pharmaceutical operations, such as weighing, determination of specific gravity, boiling point, melting point, optical rotation, etc; also comminution, expression, decantation, filtration, maceration, percolation, diffusion, dialysis, crystallization, and precipitation. *Lectures and recitations, W., F., at* 11; *one laboratory period.* Mr. RABAK.
2. Pharmaceutical Technology. The study and manufacture of galenical and other preparations: waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also of pills, suppositories, ointments, plasters, etc. *First semester; lectures and recitations, Tu., Th., at* 11; *three laboratory periods.* Assistant Professor FISCHER and Mr. DU MEZ.
3. Prescription Practice. The study of the prescription; practice in the compounding of physicians' prescriptions; also the study of physical, chemical, and therapeutical incompatibilities. *Second semester; lectures and recitations, Tu., Th., at* 11; *two laboratory periods.* Assistant Professor FISCHER and Mr. DU MEZ.

10. The Economic Function of the State. This course consists of a series of weekly lectures, historical and critical, on the state in its relation to industry, trade, and the professions, with special reference to pharmacy. Given in alternate years.
11. Law Applied to Pharmacy. A course of lectures treating of the validity and construction of laws especially restraining the practice of pharmacy; of the liability of pharmacists, both criminal and civil; for their own violation of laws and that of their agents; also for their own negligence and that of their agents. Given in alternate years.
12. State Boards of Pharmacy. The development of state boards

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of pharmacy in the United States and their legal functions, with special reference to their duties as examining bodies.

13. The History of Pharmacy. *Second semester; every other Wednesday at* 4. Professor KREMERS.

14. Pharmacopoeias and their Revision, with special reference to the U. S. Pharmacopoeia. *Second semester; every other Wednesday at* 4. (Given in 1906-07.) Professor KREMERS.

HOME ECONOMICS

PROFESSOR HUNT AND MISS HUNTINGTON

Primarily for Undergraduates

1. House Sanitation. The site, surroundings, and construction of a dwelling house considered with reference to health. This course is designed for all undergraduates except those specializing in Home Economics, who are advised to take course 6. The work in sanitation will, during the year 1906-07, be supplemented by a course of lectures on Domestic Architecture given by Arthur Peabody, University Architect. These lectures will be given on Thursdays at 11, and will be open to the public. *Three-fifths study. First semester; Tu., Th., at* 11 *and one hour to be arranged.* Professor HUNT.

2. House Decoration. *Second semester; W., at* 4. Professor HUNT.

3. Food Materials. Lectures upon the composition of food, and the processes involved in its manufacture and preparation. Laboratory practice in cooking and in the study of food materials. Prerequisite: General Chemistry. *Full study during semester; lectures, M., W., at* 2, *laboratory periods M., W., F.,* 3 *to* 5. Professor HUNT and Miss HUNTINGTON.

4. Food Materials. A continuation of course 4, including the calculation of dietaries, a study of dietetics, and practice in the preparation of meals of given food value. *Second semester; M., W., F.,* 3 *to* 5. Professor HUNT and Miss HUNTINGTON.

5. Household Economy. A study of the organization of the household and of the details of house management, including the principles involved in cleaning and in the care of fabrics, woods, and metals. *Two-fifths study. Second se-*

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mester; Tu., Th., at 11. *Laboratory period Tu.,* 2 *to* 4. Miss HUNTINGTON.

6. Advanced Course in House Sanitation. Designed for students specializing in Home Economics. Prerequisites: chemistry and bacteriology. *First semester; M., W., F., at* 9. Professor HUNT.

   Course 6 may be substituted for course 1, but credit will be given for only one of the two courses.

7. Adulterations of Food Stuff. Prerequisites: General Analytical and Organic Chemistry. *First semester; three hours a week.* Professor FISCHER.

   Unusual facilities are offered to students in this course. The work is done in the laboratory of the Wisconsin State Food and Dairy Commissioner, to which large amounts of material are sent for examination.

8. Microscopical Examination of Food Products and Fibers. The histology of plant products used as foods, beverages, and condiments, with special reference to the detection of adulterants. A study of the structure and nature of the common textile fibers is also included. *Second semester; two-fifths study.* Dr. DENNISTON.

9. Bacteriology for Students in Home Economics. (See p. 207.) For a description of the department of Home Economics, see p. 232.

MUSIC

PROFESSOR PARKER, MR. BREDIN, AND MR. OWEN

The courses in music, except course 1, are open as electives to students, freshmen excepted, in any department of the University who show sufficient musical ability to pursue them with profit, and receive the same credit as similar courses in other departments of the University.

Course 1 is open to election in the freshman year by candidates for the degree of Bachelor of Arts, in addition to a minimum of fourteen hours, but does not count as a part of the required 120 hours.

For admission to course 1, no previous knowledge of music is required. Those desiring to take course 2 must be able to read and play simple four-part music. Course 1 will be found useful in

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strengthening preparation for the courses in harmony and counterpoint. Courses 1 and 2, or their equivalent, are required as a preparation for course 6. Students may take the lectures of the second semester of course 7 without having taken those of the first semester.

Course 9 allows a credit of two-fifths. It is intended primarily for those who expect to teach in the public schools, either in the grades or high school. The Saturday class will be devoted to study and practice in conducting.

Course 10 provides for advanced study in orchestral music, and is open to all who have sufficient experience in such work to enable them to pass a satisfactory examination. Credit is given for the second year of study. Symphonies, classical overtures, and standard concert selections are studied. Advanced vocal and instrumental students are given an opportunity to practice with the orchestra in solos and concertos.

A special course in the study of Methods of Teaching for the supervision of music in the public schools is given by Mr. Herman E. Owen. See announcement under School of Music, p. 335.

Students may be admitted to advanced courses on examination.

Special students may substitute private lessons in piano playing or singing for one or more studies on recommendation of the Professor of Music, but without credit toward graduation, except as specified under course 8. See the statement of the School of Music on p. 335.

Classes meet in the music lecture room, Assembly Hall.

Students who desire to become connected with the University Military Band should confer with the leader.

Primarily for Undergraduates

1. Musical Theory and Choral Practice. *Throughout the year; M., W., at* 5. Mr. BREDIN.
2. Elementary Harmony. *Throughout the year; Tu., Th., at* 4. Professor PARKER.
3. Advanced Harmony. *First semester; M., W., F., at* 11, *subject to change.* Professor PARKER.
4. Counterpoint. *Second semester; M., W., F., at* 11. Professor PARKER.
5. Double Counterpoint and Fugue. *Throughout the year; M., W., F., at* 10, *subject to change.* Professor PARKER.

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6. Musical Composition. *Twice a week throughout the year; Tu., Th., at* 11, *subject to change.* Professor PARKER.
7. History of Music. Lectures. *Throughout the year; Tu., Th., at* 3. Professor PARKER.
8. Advanced Piano Playing, Singing, Organ, or Violin. Senior and junior years only. Hours and credit to be arranged with the instructor and Director of the School of Music, but not to exceed a total of ten semester hours.
9. Public School Music. Two-fifths credit. *Throughout the year; M., W., at* 4, *and S., at* 10, *subject to change.* Mr. OWEN.
10. Advanced Study in Orchestral Music. *Throughout the year; W., at* 7, P. M. Mr. OWEN.

THE COURSE IN COMMERCE

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
JOHN B. PARKINSON, A. M., Vice President. Professor of Constitutional and International Law.
W. A. SCOTT, Ph. D., Director. Professor of Political Economy.

T. S. ADAMS, Ph. D., Assistant Professor of Political Economy.
D. E. BURCHELL, A. M., Professor of Business Administration.
V. COFFIN, Ph. D., Assistant Professor of European History.
A. L. P. DENNIS, Ph. D., Professor of European History.
L. W. DOWLING, Ph. D., Assistant Professor of Mathematics.
N. M. FENNEMAN, Ph. D., Professor of Geology.
C. R. FISH, Ph. D., Assistant Professor of American History.
H. C. HORACK, Ph. B., LL. B., Assistant Professor of Law.
F. G. HUBBARD, Ph. D., Professor of the English Language.
V. LENHER, Ph. D., Associate Professor of Chemistry.
*B. H. MEYER, Ph. D., Professor of Political Economy.
P. S. REINSCH, Ph. D., Professor of Political Science.
E. C. L. C. ROEDDER, Ph. D., Assistant Professor of German.
B. W. SNOW, Ph. D., Professor of Physics.
S. E. SPARLING, Ph. D., Assistant Professor of Political Science.

*On leave of absence.

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SUSAN A. STERLING, M. L., Assistant Professor of German.
H. C. TAYLOR, Ph. D., Assistant Professor of Political Economy.
A. A. YOUNG, Ph. D., Assistant Professor of Political Economy.
FLORENCE E. ALLEN, M. L., Instructor in Mathematics.
C. D. COOL, A. M., Assistant in Romance Languages.
S. W. GILMAN, LL. B., Instructor in Business Administration.
R. H. HESS, M. L., Assistant in Political Economy.
M. O. LORENZ, A. B., Instructor in Political Economy.
OTTO PATZER, M. L., Instructor in French.
E. PROKOSCH, Ph. D., Instructor in German.
B. M. RASTALL, M. A., Assistant in Mathematics.
A. R. SEYMOUR, M. L., Instructor in Romance Languages.
ELSBETH VEERHUSEN, Ph. D., Instructor in German.

THE PURPOSE OF THE COURSE

The purpose of this course is to supply facilities for the training of young men who desire to enter business careers, especially in such fields as domestic and foreign commerce and banking or branches of the public service, like the consular, in which knowledge of business is essential. It has been established in the belief that in order to achieve the largest measure of success at the present time, and in order properly to perform his duties to himself and to society, the business man needs not only a college education, but a course of study adapted to his peculiar needs. Justification for this belief may be found in the magnitude, complexity, and rapidly changing character of modern industrial processes, and in the unfitness of the traditional college course properly to equip a young man for the most efficient work in this field. The modern business man needs training of the highest order, combined with a knowledge of the mathematical, physical, and social sciences, and of their applications to commerce and industry, and a thorough command of his mother tongue and of at least one modern foreign language. Fortunately the development of historical, political, economic, and scientific studies in recent times, and improvement in our educational methods, has made possible the construction of a course of study which combines the necessary elements.

It is not the purpose of this course to graduate young men equipped with all the technical knowledge needed for the performance of the manifold processes of industry and commerce.

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It is well understood that such knowledge must be acquired by actual experience in connection with business institutions. It is our purpose, however, to give our students such training and such knowledge of the structure and workings of the industrial organism as will enable them to learn the technique of any concern in much less time than would otherwise be required, and to attain a degree of industrial and social efficiency which is impossible for the average man who goes into business without such preliminary training.

REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. (See p. 60.)

Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for the degree, will be admitted to any of the studies of this course for which they are properly prepared.

PLAN OF THE COURSE OF STUDY

I. STUDIES REQUIRED OF ALL

These occupy nearly the whole of the student's time in the freshman and sophomore years, about one-half of his time in the junior year, and considerably less than one-half of his time in the senior year.

With two exceptions the studies of the first two years are those which have long been considered as fundamental and necessary in a liberal education, namely: natural science, mathematics, English, foreign languages, history, and economics. The peculiarity of the course in these years consists in the selection made from the numerous studies available under these different heads. In natural science, physical geography and the physiography of the United States have been included because they are basal to commercial geography; in mathematics, algebra and its commercial applications have been selected because of their practical utility in various branches of industry and commerce; the

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course in English is the general training course required of all freshmen in the University; the foreign language courses devote special attention to the acquisition of a speaking and writing command of these languages, though the study of literature is by no means neglected; the course in history is selected both for its value as a training in the use of the historical method, and because it aids in laying a proper foundation for various other courses; elementary economics and commercial geography are basal to a large number of courses in applied economics offered in the junior and senior years.

The required work of the junior and senior years includes continuation courses in the modern languages, money and banking, transportation, commercial law, and business administration. These are designed to complete the student's survey of the structure and workings of the modern industrial organism, to supplement the specialized studies of his elective group, to increase his breadth of vision, and to train him in the investigation and interpretation of the kinds of facts that he must deal with in after life. The course in business administration serves the additional purpose of testing the student's ability to perform the various duties for which he is being trained; for example, to carry on correspondence in English and the foreign language he is studying, to make the mathematical calculations required in the various business situations placed before him, to use business forms and papers, rate sheets, etc., to devise systems of accounting, and actually to keep the accounts of the various enterprises suggested; in short, to put to actual use the knowledge and the training derived from the courses he has been pursuing.

II. ELECTIVE GROUPS

These occupy from three to five hours per week during the junior and senior years, and furnish opportunity for a more thorough study of the various branches of commerce and industry. The following groups are at present available, and others may be arranged on consultation with the Director:

Banking and Finance

Junior Year: Public Finance, 3; Corporation Economics, 2; Financial Institutions, 3.

Senior Year: Corporation Finance and Securities, 2; Financial History of the United States, 3; Seminary, 2; Thesis, 4.

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Transportation

Junior Year: Statistics, 3; Corporation Economics, 2.

Senior Year: Corporation Finance and Securities, 2; Special Problems in Transportation, 2; Thesis, 4.

Manufacturing Industries

Junior Year: Statistics, 3; Corporation Economics, 2; Manufacturing Industries, 3.

Senior Year: Corporation Finance and Securities, 2; Manufacturing Industries, 3; Thesis, 4.

Agricultural Industries

Junior Year: Statistics, 3; Elements of Agricultural Economics, 2; Historical and Comparative Agriculture, 2.

Senior Year: Agricultural Industries, 4; Thesis, 4.

The Consular Service

Junior Year: Colonial Politics, 3; Contemporary International Politics, 3; History of Diplomacy, 4.

Senior Year: International Law, 3; Federal Administration, 3; Consular Service, 2; Thesis, 4.

III. FREE ELECTIVES

From twenty-nine to thirty-seven semester hours are available for free electives. These may be chosen from any of the courses in the University which the student is fitted to enter, but it is expected that his choice will be guided by the desire to round out and broaden the course he is pursuing.

ARRANGEMENT OF STUDIES

FRESHMAN YEAR

Physical Geography and Physiography of the United States, 3; German, French, or Spanish, 4; English, 3; Mathematics, 3; History, 3; Gymnastics and Drill.

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SOPHOMORE YEAR

Commercial Geography, 3; Foreign language (continued), 2, or second language, 4; Chemistry or Physics, 5; Elementary Economics (first semester), Money and Banking or Transportation (second semester), 3; Free Electives, 2 or 0; Gymnastics, Drill, and Business Administration.

JUNIOR YEAR

Foreign language (continued), 2, or second language (if not taken in sophomore year), 4; Money and Banking or Transportation (the one not taken the second semester, sophomore year), first semester, 3; Elective Group, 3; Free Electives, first semester, 5 or 7, second semester, 8 or 10; Business Administration.

SENIOR YEAR

Foreign language (continued), 2; Commercial Law, 3, Elective Group and Thesis, 4; Free Electives, 6; Business Administration.

DEPARTMENTS OF INSTRUCTION

Political Economy

For detailed information regarding these courses see p. 123.

1. The Elements of Economic Science. *Repeated each semester; M., W., F., at* 8, 9, *and* 10. Assistant Professor YOUNG and Mr. LORENZ.
3. Elements of Public Finance. *First semester; M., W., F., at* 9. Assistant Professor ADAMS.
5. The Elements of Money and Banking. *Repeated each semester; M., W., F., at* 9. Professor SCOTT and Mr. HESS.
7a. Economic Geography. A general survey. *First semester; M., W., F., at* 8 *and* 9. Assistant Professor TAYLOR.
7b. Economic Geography of the United States. *Second semester; M., W., F., at* 8. Assistant Professor TAYLOR.
8. Business Administration. *Throughout three years; two hours a week; or two years, three hours a week.* Professor BURCHELL and Mr. GILMAN.
9. Commercial Law. Open only to juniors and seniors of suitable preparation. *Throughout the year; three times a week.* Assistant Professor HORACK.
18. Senior Seminaries. For thesis students. Professors SCOTT

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and BURCHELL, Assistant Professors ADAMS, TAYLOR, and YOUNG.

26. The Elements of Agricultural Economics. *First semester; Tu., Th., at* 12. Assistant Professor TAYLOR.

27. Historical and Comparative Agriculture. *Second semester; Tu., Th., at* 12. Assistant Professor TAYLOR.

28. Agricultural Industries. *Throughout the year; Tu., Th., at* 8. Assistant Professor TAYLOR.

29. Manufacturing Industries. Group A: *Second semester M., W., at* 3; *laboratory period, Th.,* 4 *to* 6. Group B: *Second semester; Tu., Th., at* 5; *laboratory period, W.,* 4 *to* 6. Professor BURCHELL and Mr. GILMAN.

30. Elements of Statistics. Two lectures and two hours laboratory work a week, for which a credit of three hours is given. *First semester; W., F., at* 12. *Laboratory hours to be arranged.* Assistant Professor ADAMS.

31. Economic Statistics. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Assistant Professor ADAMS.

33. Financial History of the United States. *First semester; M., W., F., at* 8. Professor SCOTT.

34. Corporation Finance and Securities. Lectures and assigned reading. *Second semester; Tu., Th., at* 12. Assistant Professor YOUNG.

35. Transportation and Communication. *Repeated each semester; M., W., F., at* 9. Mr. LORENZ.

36. Special Problems in Transportation. *Second semester; Tu., Th., at* 9. Assistant Professor YOUNG.

37. Corporation Economics. *Second semester; Tu., Th., at* 10. Assistant Professor YOUNG.

38a. The Economics of Insurance. *First semester; Tu., Th., at* 11. Assistant Professor YOUNG.

38b. Life Insurance. *Second semester; Tu., Th., at* 11. Assistant Professor YOUNG.

45. Financial Institutions. Must be preceded by course 5. *Second semester; Tu., Th., at* 3; *laboratory period, Tu.,* 4 *to* 6. Professor BURCHELL and Mr. GILMAN.

Political Science

17. Federal Administration. *Second semester; Tu., Th., at* 9. Assistant Professor SPARLING.

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18. International Law. *First semester; M., W., F., at* 10. Professor PARKINSON.

20. Contemporary International Politics. *Second semester; M., W., F., at* 10. In connection with this course a series of public lectures on problems of international politics will be given. Professor REINSCH.

21. Colonial Politics. A study of the principal systems of colonial government. *First semester; M., W., F., at* 10. Professor REINSCH.

23. The Consular Service. *First semester; Tu., Th., at* 9. Assistant Professor SPARLING.

History

For detailed information see p. 114.

4. History of the United States. A general survey, with emphasis on political history. This course, or an equivalent, must precede all other courses in American history.

4a. To the Presidency of Jackson. *First semester; M., W., F., at* 11. Assistant Professor FISH.

4b. From the Presidency of Jackson to the present time. *Second semester; M., W., F., at* 11. Assistant Professor FISH.

5. English History. *Throughout the year; Tu., Th., at* 10, *and a third hour in sections for quiz work.* Professor DENNIS and assistants.

7. History of Europe in the Nineteenth Century, 1815-1900. *Throughout the year; M., W., F., at* 11. Assistant Professor COFFIN.

15. Diplomatic History of the United States. *Throughout the year; Tu., Th., at* 10. Assistant Professor FISH.

English

For detailed information see p. 167.

1. Freshman English. English prose style. Composition. *Three hours per week throughout the year.* Professor HUBBARD and assistants.

German

For detailed information see p. 156.

2C. Modern Prose, narrative and dramatic, and one classical drama. *Throughout the year; M., Tu., W., F., at* 9. Assistant Professor ROEDDER.

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3C. Reading, Conversation, and Composition. *Throughout the year; Tu., Th., at* 11. Dr. VEERHUSEN.

4C. A continuation of the work of the preceding year, the texts being chosen chiefly to illustrate German history, political, cultural, and literary. *Tu., Th., at* 9. Assistant Professor STERLING.

5C. The work of this course will be of a strictly practical character, being devoted chiefly to oral and written work on topics connected with the actual demands of a commercial career. *Throughout the year; Tu., Th., at* 11. Dr. PROKOSCH.

French

For detailed information see p. 148.

6C. Elementary Course. *Throughout the year; Tu., W., Th., F., at* 9. Mr. PATZER.

17C. Conversation, Composition, and Reading. *Throughout the year; Tu., Th., at* 11. Mr. PATZER.

29C. Conversation, Commercial Correspondence. and Reading. *Twice a week throughout the year.* Mr. PATZER.

30C. Conversation, Commercial Correspondence, and Reading. A continuation of course 29C. *Twice a week throughout the year.* Mr. PATZER.

Spanish

2EC. Elementary. Giese's *First Spanish Book*, and other easy prose. *Throughout the year; in two sections: M., Tu., W., Th,. at* 9; *Tu., W., Th., F., at* 8. Mr. COOL.

6C. Conversation, Composition, and Reading. Special attention is devoted to the vocabulary of everyday life. *Throughout the year; Tu., Th., at* 11. Mr. SEYMOUR.

7C. Conversation, Commercial Correspondence, and Reading. Special attention is devoted to the vocabulary of commerce. *Throughout the year; W., F., at* 11. Mr. SEYMOUR.

8C. Conversation, Commercial Correspondence, and Reading. Continuation of course 7C. *Twice a week throughout the year.* Mr. SEYMOUR.

Algebra

1. Algebra. Theory of indices, logarithms, limits, arrangements and groups, and progressions. *First semester; three times a week.* Miss ALLEN and Mr. RASTALL.

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7. Applied Algebra. Theory of probabilities, series, and the application of mathematics to insurance and finance. *Second semester; three times a week.* Assistant Professor DOWLING, Miss ALLEN, and Mr. RASTALL.

Physics

1. General Lectures and Introductory Laboratory Practice. *Lectures; M., Tu., W., Th., at* 12. *One recitation a week at an hour to be arranged. Laboratory practice twice a week.* Professor SNOW and assistants.

Chemistry

7. General Chemistry. Lectures and laboratory work. *Five hours a week throughout the year.* Associate Professor LENHER and assistants.

Geology

For detailed information see p. 190.

4. Physical Geography. *First semester; M., W., F., at* 10. Professor FENNEMAN and assistants.
5. Physiography of the United States. *Second semester; M., W., F., at* 10. Professor FENNEMAN and assistants.

COMMERCIAL COURSE FOR ENGINEERS

The College of Engineering offers a five-year course which permits a combination of the studies of the various engineering courses with the essential studies of the Course in Commerce. Students making this combination will take the engineering studies as prescribed on p. 267 of the Catalogue and the studies of the Course in Commerce as follows:

FRESHMAN YEAR

Physical Geography and Physiography of the United States, 3.

SOPHOMORE YEAR

Commercial Geography, 3; Elementary Economics (*second semester*), 3.

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JUNIOR YEAR

Money and Banking (*first semester*) and Transportation (*second semester*), 3; Elective Group, 3.

SENIOR YEAR

Elective Group, 3; Business Administration, 3.

FIFTH YEAR

Business Administration, 3; Commercial Law, 3.

At the end of the fifth year the appropriate engineering degree will be conferred. Students who so desire may, during the senior year, write a thesis in connection with their elective group in Commerce, and receive the degree of B. S., General Engineering Course.

GRADUATE STUDENTS

Graduates of this or other colleges and universities of good standing will be admitted to this course, and arrangements will be made so that they may take its peculiar studies in two years, or in less time, provided they have already pursued some of them in their undergraduate courses.

PREPARATION OF TEACHERS

Students who wish to prepare themselves to teach commercial subjects in secondary schools will be aided in so arranging their elective work as to attain this end. Special facilities for pedagogical practice will be given such students in connection with the course in Business Administration, and work in addition to that prescribed may be arranged in Commercial Geography and Economic History.

SPECIAL LECTURERS

Special lectures are provided from time to time for the purpose of acquainting students with present business conditions and opportunities. So far as possible, men representing the chief business enterprises of the United States are secured for this purpose.

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REQUIREMENTS FOR GRADUATION

Students who have successfully completed the above course of study will be admitted to graduation and will receive the degree of Bachelor of Arts.

CHARGES AND FEES

All fees are required to be paid strictly in advance at the beginning of each semester before cards are issued entitling the student to admission to classes.

Tuition is free for all students from the State of Wisconsin.

Tuition for non-resident students, per semester	$ 15 00
Incidental fee for all students, per semester	10 00
Gymnasium fee for all men students, per semester	1 00

Communications regarding this Course should be addressed to W. D. Hiestand, Registrar, or to William A. Scott, Director.

THE COURSE IN PHARMACY

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
E. A. BIRGE, Ph. D., Dean of the College of Letters and Science.
EDWARD KREMERS, Ph. G., Ph. D., Director, and Professor of Pharmaceutical Chemistry.

C. E. ALLEN, Ph. D., Assistant Professor of Botany.
W. W. DANIELLS, M. S., Sc. D., Professor of Chemistry.
RICHARD FISCHER, Ph. C., Ph. D., Assistant Professor of the Theory and Practice of Pharmacy.
W. D. FROST, Ph. D., Assistant Professor of Bacteriology.
R. A. HARPER, Ph. D., Professor of Botany.
L. KAHLENBERG, Ph. D., Professor of Physical Chemistry.
V. LENHER, Ph. D., Associate Professor of Chemistry.
B. W. SNOW, Ph. D., Professor of Physics.
R. H. DENNISTON, Ph. G., Ph. D., Instructor in Pharmaceutical Botany, and Curator of the Drug Cabinet.
E. W. OLIVE, Ph. D., Instructor in Botany.
A. G. DU MEZ, Ph. G., Laboratory Assistant in Pharmacy.

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H. B. NORTH, Ph. G., B. S., Instructor in Chemistry.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
GEORGE B. REED, M. A., Assistant in Botany.
B. F. LUTMAN, Laboratory Assistant in Botany.
F. RABAK, Ph. G., B. S., Instructor in Pharmaceutical Chemistry

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The prime object of the Course in Pharmacy is to furnish a thoroughly scientific foundation for the pusuit of the profession of pharmacy. The elements of the fundamental natural sciences, chemistry, botany, or biology, and physics must first be studied before their application to pharmacy can rationally be considered. This is as true for pharmacy as for any other applied science or art. In pursuing these general studies the pharmacy students have the advantage of close association with students from other courses. This implies that in these studies they must be able to keep abreast with students who are graduates of accredited high schools. The best preparation for college, therefore, which the prospective pharmacy student should seek is not that of the shops, but that of a good high school or academy of like rank. The University does not demand practical experience for admission to the courses in pharmacy, but desires such preparation as will best fit for college or university work.

The general study of these fundamental sciences is followed by more or less specialized courses. General chemistry, inorganic and organic, qualitative and quantitative analysis, are followed by pharmaceutical chemistry, and applied chemical analysis; general botany by vegetable histology and anatomy of drugs; general physics by pharmaceutical technique. These somewhat specialized studies, in turn, not only lay the foundation for the study of the more strictly applied courses in practical pharmacy and pharmacognosy, but also prepare the student for thesis work.

The student who can spend only two years at the University is compelled to take up the more technical studies of his course before he has laid a satisfactory foundation. Such a compromise is outlined under the caption, Courses of Study. The three-year student, as a rule, finds time to pursue other studies besides those outlined above, *e. g.*, German, physiology, or bacteriology, etc. The four-year student has the great advantage of supplementing his high school preparation during the freshman and sophomore years by acquiring a reading knowledge of German and French, and by the study of university mathematics, all of which studies

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are of the greatest importance when the more advanced work of the natural sciences is taken up during the junior and senior years.

Special attention is called to the four-year course offered to graduates of accredited high schools. The course was created in order to accommodate those students who desire to obtain a general scientific education and to include in their course the pharmaceutical studies, and with the hope of stimulating a broader pharmaceutical education. For the more applied courses special laboratories have been equipped.

Like the sister profession, medicine, pharmacy is in need, not only of the general practitioner, but also of the specialist. To meet the demands of such, the University offers graduate courses. Graduates who desire to prepare themselves as chemists for manufacturing establishments, as analytic or sanitary chemists, or as bacteriologists, will find that the graduate work in the Course in Pharmacy, as well as the other departments of the University, offers excellent opportunities for advanced and more specialized study. Special lines of research can also be pursued in various departments by those who desire to work for a higher degree. The attention of advanced students is especially called to the graduate work. (See Index.)

Laboratories

A description of the various general laboratories of the University may be found by reference to the index. The special laboratories for pharmacy students are located in North Hall.

THE PHARMACEUTICAL LABORATORIES. These laboratories are located in the west wing of the second floor and the east wing of the third floor of the new Chemistry Building. Their equipment is similar to that of the other laboratories in the same building.

Collections

The collections of the University, including the drug cabinet, are described on p. 47.

Libraries

For a statement as to general library facilities at the University in the city of Madison, see p. 39. The department library for ready reference is now housed in the library of the new Chem-

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istry Building, a large, well lighted, and equipped room on the third floor, unusually well supplied with reference works and the best periodicals. The other department libraries, as well as the general library, are all on the same campus and, therefore, easy of access.

Terms of Admission

The requirements for admission to the several colleges of the University are described on p. 60.

The special requirements for admission to the two-year pharmacy course are herewith repeated.

I. Graduates from high schools are admitted without examination and without practical experience in a drug store.

II. Non-graduates are admitted if they comply with the following requirements:—

1. They must be at least eighteen years of age.

2. They must present satisfactory certificates of *at least* one year's attendance from some standard high school, or its equivalent from a similar educational institution.

3. The time intervening between the secondary education and the college course should have been spent in a drug store, where physician's prescriptions are regularly compounded.

Degrees

The degrees given by the several colleges are described on p. 91. The first degrees given in pharmacy are that of *Graduate in Pharmacy*, upon completion of the two-year course, and that of *Bachelor of Science, Pharmacy Course*, conferred upon candidates who have successfully met the requirements of the four-year course. The degree of *Master of Pharmacy* is conferred as a second degree upon graduates in pharmacy.

The degrees of *Master of Science* and *Doctor of Philosophy*, are conferred as higher degrees upon candidates who have a baccalaureate degree.

Fees and Expenses

For tuition fees see p. 84; for laboratory fees, p. 87. An estimate of expenses for board and lodging will be found on p. 89.

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COURSES OF STUDY

Two-Year Course

FIRST YEAR. FIRST SEMESTER

Chemistry 3*. General Chemistry. The laboratory work accompanying this course is especially designed for pharmacy students. Eight-fifths credit. Associate Professor LENHER and Mr. RABAK.

Biology 1. General Biology. Introductory to both botany and zoology, and required as preliminary to all work in either department. *Two recitations, or lectures, and eight hours' laboratory work a week.* Professor HARPER, Professor ALLEN, and assistants.

Botany 25. The Collection and Commerce of Crude Drugs. Laboratory and field work supplemented by lectures and recitations. One-fifth. Dr. DENNISTON.

Pharmacy 1. Laboratory Technique. The principles and practice of pharmaceutical operations, such as comminution, expression, decantation, filtration, maceration, percolation, diffusion, dialysis, crystallization and precipitation. Three-fifths. *W., F., at* 11. Mr. RABAK.

FIRST YEAR. SECOND SEMESTER

Chemistry 3. General Chemistry continued as a three-fifths study.

Chemistry 10. Qualitative Analysis. First half of semester, daily. Professor DANIELLS and Mr. RABAK.

Chemistry 15. Quantitative Analysis. Second half of semester, daily. Professor DANIELLS and Mr. RABAK.

Chemistry 20b. Organic Chemistry for Pharmacy students. Two-fifths course. Recitations and laboratory work. Dr. KOELKER and Mr. RABAK.

Botany 20. Morphology and Classification of the Flowering Plants. An elementary course designed primarily for students in Pharmacy. The life histories and ecology of seed plants, with a comparative study of the structure of the principal families and the identification of common species. Field work will be an important feature. Excursions on Saturdays. *M., Tu., W., Th., F.,* 8 *to* 10. Dr. OLIVE and Mr. REED.

*The figures refer to the numbers of the courses as given in the statements under Departments of Instruction.

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Pharmacy 1. Laboratory Technique. Continuation of the work of the first semester. (See above).

SECOND YEAR. FIRST SEMESTER

Chemistry 6. Advanced Inorganic Chemistry. Lectures and recitations, *Tu., Th., F., at* 10; *laboratory work daily.* Professor KREMERS and Mr. SIEVERS.

Chemistry 40. Plant Chemistry. As a three-fifths study supplementary to pharmacognosy. Recitations, *Mon., at* 10; *two laboratory periods.* Professor KREMERS and Mr. SIEVERS.

Botany 5. Vegetable Histology. A systematic study of the tissues of the phanerogams and ferns. Use of reagents and stains, section cutting and mounting. Dr. DENNISTON and Mr. LUTMAN.

Botany 22. Pharmacognosy. This course presents to the student the main facts of the natural history of drugs, and the plants producing them. *Twice a week throughout the senior year.* Dr. DENNISTON.

Pharmacy 2. Pharmaceutical Technology. The study and manufacture of galenical and other preparations: waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also of pills, suppositories, ointments, plasters, etc. Lectures and recitations, *Tu., Th., at* 11; *three laboratory periods.* Assistant Professor FISCHER and Mr. DU MEZ.

SECOND YEAR. SECOND SEMESTER

Chemistry 27. Advanced Organic Chemistry. Lectures and recitations, *Tu., Th., F., at* 10; *laboratory work daily.* Professor KREMERS and Mr. SIEVERS.

Chemistry 40. Plant Chemistry. Continued from first semester.

Chemistry 45. Alkaloidal Assay. *One-fifth credit.* Assistant Professor FISCHER.

Botany 21. Microscopical Examination of Drugs and Food Products. The object of this course is to study and illustrate the methods of identifying powdered drugs and food products and detecting adulterations. Three-fifths credit. Dr. DENNISTON.

Botany 22. Pharmacognosy. Continuation of first semester's work.

Pharmacy 3. Prescription Practice. The study of the prescription; practice in the compounding of physicians' prescrip-

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tions; also the study of physical, chemical and therapeutical incompatibilities. *Lectures and recitations, Tu., Th., at* 11; *two laboratory periods.* Assistant Professor FISCHER and Mr. DU MEZ.

Four-Year Course

Students who desire to include pharmaceutical studies as a part of their general college education will have to elect the prerequisite studies enumerated below to accomplish this end. Such a course, if to lead to the degree of *Bachelor of Science, Pharmacy Course,* must include courses 1, 2, and 3 in Pharmacy, and course 22 in Botany.

Basal sciences: Chemistry 1, Biology 1, Physics 1. These should be taken during the first and second years.

Advanced sciences: Chemistry 40 and Botany 5. These courses should be taken during the third year, in order that the courses in Pharmacy and Pharmacognosy mentioned above may be taken during the fourth year.

The language requirements of this course are English 1, French 1, and German 2S, which should be taken during the first and second years.

The major study and thesis may be taken in chemistry, biology, pharmacy, or any department in which the student is sufficiently prepared to do such work. For the rules governing the major study and thesis see p. 99.

Additional electives sufficient to make 120 unit hours may be chosen upon consultation with the adviser for Pharmacy students.

THE PRE-MEDICAL COURSE

The facilities for preparation for practical medicine have been constantly increased in the College of Letters and Science. Not only is opportunity given for the study of subjects of which some knowledge is demanded for entrance into leading medical schools, but in addition a thorough training and facilities for research are offered in human anatomy, histology, embryology, neurology, physiology, physiological chemistry, and bacteriology, subjects among the most important of those included in the medical curriculum. Credit is given in the leading medical schools of the country for the studies here pursued. Beginning September, 1906, work

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equivalent to the entire first year and a large part of the second year of the standard American medical curriculum, will be offered. It is intended in the near future to offer the full work of the first two years of this curriculum.

General Requirements

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. (See p. 60.)

Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for a degree, will be admitted to any of the studies of this course for which they are properly prepared.

For the requirements for a degree, see p. 98.

Preparation for Medicine

A candidate for the degree of Bachelor of Arts, who desires special preparation for the study of medicine, is advised, first, to take courses in general biology and in chemistry, and then to choose his advanced work mainly from the departments of anatomy, physiology, bacteriology, and chemistry, in one of which his major should be taken. A course in psychology will prove of special value to one intending later to specialize in nervous and mental diseases, and the courses in botany and zoology to those desirous of broad biological foundation for medical study. Physics should be taken in preparation for physiology. Latin is important for an understanding of medical terms, German and French are essential to one who desires to keep up with the progress of medicine, and Italian is of great value.

For detailed information regarding the courses of special advantage to the student preparing for practical medicine, see the accounts given of the various departments in the College of Letters and Science, especially those of anatomy, bacteriology and hygiene, biology, botany, zoology, chemistry, philosophy, physics, English, French, German, and Latin.

The department of Physiology, recently established, will be

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ready for work in September, 1906. Courses will here be offered in physiology and physiological chemistry.

A special bulletin describing the courses preparatory to practical medicine will be published. A copy of this, as well as further information regarding the course, may be obtained by applying to the Registrar of the University.

HOME ECONOMICS

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
CAROLINE L. HUNT, A. B., Director, and Professor of Home Economics.
ELLEN A. HUNTINGTON, A. B., Instructor in Household Economy.

W. W. DANIELLS, M. S., Sc. D., Professor of Chemistry.
VICTOR LENHER, Ph. D., Associate Professor of Chemistry.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
RICHARD FISCHER, Ph. D., Chemist for the Wisconsin State Dairy and Food Commission.
H. L. RUSSELL, Ph. D., Professor of Bacteriology.
W. D. FROST, Ph. D., Assistant Professor of Bacteriology.
JOSEPH ERLANGER, Ph. D., Professor of Physiology.
R. H. DENNISTON, Ph. D., Instructor in Botany.
ARTHUR PEABODY, University Architect and Special Lecturer in Domestic Architecture.

The department of Home Economics has two purposes. The first is to offer elective courses which shall be available as a part of the general education of all the young women in the College of Letters and Science. For this purpose courses 1, 2, and 3 on page 211 are offered. These courses, having no prerequisite in science, are open to all students. The second purpose is to offer a four-year course to those young women who wish to specialize in Home Economics. This course leads to the degree of Bachelor of Arts, and includes:

1. The studies required of all regular students in the College of Letters and Science;

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2. Prescribed courses in general science;
3. Special courses in Home Economics;
4. Free electives.

The course is outlined below. For a description of the courses in Home Economics, see p. 211.

Requirements for Admission

The requirements for admission to this course are the same as for admission to the other courses in the College of Letters and Science. See p. 60.

OUTLINE OF THE COURSE OF STUDY

The number after a study indicates the number of hours per week.

FIRST YEAR

First semester: English 3; Language 4; Mathematics 3; Chemistry 5; Physical Training 2.

Second semester: Continuation of the first.

SECOND YEAR

First semester: Analytical Chemistry 3; Language 2 or 4; Biology or Physics 5; Food Materials 5.

Second semester: Language 2 or 4; Biology or Physics 5; Analytical Chemistry 3; Food Materials 3.

THIRD YEAR

First semester: Bacteriology 5; Physiology 3; Organic Chemistry 5; Language 2.

Second semester: Bacteriology for students in Home Economics 3; Physiology 2; Language 2; Organic Chemistry 5; Electives 3.

FOURTH YEAR

First semester: Food Adulterations 3; Advanced Course in House Sanitation 3; Language 2; Electives 7.

Second semester: Household Economy 2; House Decoration 1;

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Microscopical Examinations of Food Products and Foods 2; Electives 10.

Students in Home Economics will take General Chemistry, Biology, Physiology, the first semester of Organic Chemistry, and the first semester of Bacteriology with the other college students. The analytical work in Chemistry, the second semester's work in Organic Chemistry, and the second semester's work in Bacteriology will be adapted to the special needs of the department. In order to give larger opportunity for electives than would otherwise be possible, the student is allowed to choose between Physics and Biology; but unless her preparation in the science not chosen has been exceptionally good she is advised to elect it at some time during her course.

For detailed information concerning this department address Caroline L. Hunt, South Hall, Madison, Wisconsin.

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THE COLLEGE OF ENGINEERING

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.

FREDERICK E. TURNEAURE, C. E., Dr. Eng., Dean. Professor of Engineering.

Officers of Instruction in Technical Departments

MURRAY C. BEEBE, B. S., Associate Professor of Electrical Engineering.

STORM BULL, M. E., Professor of Steam Engineering.

CHARLES F. BURGESS, B. S., Professor of Applied Electrochemistry.

CHARLES H. BURNSIDE, M. A. Assistant Professor of Mechanics.

JUDSON C. DICKERMAN, B. S., Assistant Professor of Chemical Engineering.

DUGALD C. JACKSON, C. E., Professor of Electrical Engineering.

CHARLES I. KING, Professor of Mechanical Practice.

JOHN G. D. MACK, M. E., Professor of Machine Design.

EDWARD R. MAURER, B. C. E., Professor of Mechanics.

DANIEL W. MEAD, C. E., Professor of Hydraulic and Sanitary Engineering.

HENRY F. MOORE, M. M. E., Assistant Professor of Mechanics.

JAMES D. PHILLIPS, B. S., Professor of Drawing.

ARTHUR W. RICHTER, M. E., Professor of Experimental Engineering.

GEORGE C. SHAAD, B. S., Assistant Professor of Electrical Engineering.

JOHN W. SHUSTER, B. S., Assistant Profesor of Electrical Engineering.

LEONARD S. SMITH, C. E., Associate Professor of Topographic and Geodetic Engineering.

*WILLIAM D. TAYLOR, C. E., Professor of Railway Engineering.

HALSTEN J. B. THORKELSON, M. E., Assistant Professor of Steam Engineering.

*Resigned, February 14, 1906.

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BERTIE S. ANDERSON, Machinist and Assistant in Shop Practice.
JAMES T. ATWOOD, B. S., Instructor in Experimental Engineering.
JOHN E. BOYNTON, B. S., Instructor in Mechanical Drawing.
OLIVER W. BROWN, M. S., Instructor in Applied Electrochemistry.
HOWARD S. ELIOTT, B. S., Instructor in Electrical Engineering.
ROBERT F. EWALD, B. S., Assistant in Civil Engineering.
FREDERICK W. HUELS, B. S., Instructor in Experimental Engineering.
ROBERT McA. KEOWN, B. S., Instructor in Machine Design.
WILLIAM S. KINNE, B. S., Instructor in Structural Engineering.
HENRY KRATSCH, Machinist and Instructor in Mechanical Practice.
WILLIAM G. LOTTES, Instructor in Forge Practice.
FRANCIS M. McCULLOUGH, B. S., Instructor in Mechanics.
WALTER H. McINTOSH, Instructor in Woodworking.
ADAM V. MILLAR, M. S., Instructor in Mechanical Drawing.
EDWARD S. MOLES, B. S., Instructor in Mechanical Drawing.
RAY OWEN, B. S., Instructor in Topographic Engineering.
FRANK J. PETURA, B. S., Instructor in Electrical Engineering.
GEORGE G. POST, B. S., Instructor in Electrical Engineering.
JOHN C. POTTER, B. S., Instructor in Electrical Engineering.
EDWARD M. SHEALY, B. S., Instructor in Steam Engineering.
J. H. VOSSKUEHLER, B. S., Instructor in Machine Design.
JAMES W. WATSON, E. E., Instructor in Electrical Engineering.
LESTER D. WILLIAMS, B. S., Instructor in Civil Engineering.
MORTON O. WITHEY, C. E., Instructor in Mechanics.

Officers of Instruction in other Departments

GEORGE C. COMSTOCK, Ph. B., LL. B., Professor of Astronomy. Director of Washburn Observatory.
CHARLES A. CURTIS, A. B., Captain U. S. Army. Professor of Military Science and Tactics.
WILLIAM W. DANIELLS, M. S., Sc. D., Professor of Chemistry.
JAMES C. ELSOM, M. D., Professor of Physical Culture. Director of the Gymnasium.
NEVIN M. FENNEMAN, Ph. D., Professor of General and Physiographic Geology.
WILLIAM D. FROST, M. S., Assistant Professor of Bacteriology.
LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.
CHARLES K. LEITH, Ph. D., Professor of Economic and Structural Geology.

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VICTOR LENHER, Ph. D., Associate Professor of Chemistry.
CHARLES S. SLICHTER, M. S., Professor of Applied Mathematics.
ALBERT H. TAYLOR, B. S., Assistant Professor of Physics.

ARTHUR BEATTY, Ph. D., Instructor in English.
ELIOT BOARDMAN, A. B., Assistant in French.
ALLEN L. COLTON, M. A., Instructor in Physics.
EDWARD A. COOK, B. L., Instructor in English.
CHARLES D. COOL, A. M., Assistant in Romance Languages.
THOMAS H. DICKINSON, M. A., Instructor in English.
SCOTT H. GOODNIGHT, Ph. D., Instructor in German.
MARTIN H. HAERTEL, B. S., Ph. B., Assistant in German.
JOHN F. HAUSSMANN, Ph. D., Instructor in German.
WILLIAM O. HOTCHKISS, B. S., Instructor in Geology.
LEONARD R. INGERSOLL, Ph. D., Instructor in Physics.
JOHN L. KIND, Ph. D., Instructor in German.
DANIEL A. LEHMAN, M. A., Instructor in Mathematics.
RALPH B. MACNISH, B. L., Instructor in French.
FREDERICK W. MEISNEST, Ph. D., Instructor in German.
LOUALLEN F. MILLER, M. A., Instructor in Physics.
ERNEST A. MORITZ, C. E., Instructor in Mathematics.
WILLIAM J. NEIDIG, A. B., Instructor in English.
WALTER R. NELLES, A. B., Instructor in English.
HARRISON E. PATTEN, Ph. D., Instructor in Chemistry.
REUBEN S. PEOTTER, B. S., Instructor in Mathematics.
*WARREN M. PERSONS, B. S., Instructor in Mathematics.
FREDERICK W. ROE, A. M., Instructor in English.
ARTHUR R. SEYMOUR, M. L., Instructor in Romance Languages.
EDWIN R. SMITH, A. B., Instructor in Mathematics.
EARLE M. TERRY, A. M., Instructor in Physics.
CHARLES A. TIBBALS, JR., A. B., Instructor in Chemistry and Assaying.
HENRY C. WOLFF, M. S., Instructor in Mathematics.
EDWIN C. WOOLEY, Ph. D., Instructor in English.

Organization of the College

The College of Engineering is organized in the belief that a thorough-going fundamental training is the first essential to a successful engineer, but that this fundamental training may be best secured not alone by theoretical study, but by giving atten-

*Resigned, February 15, 1906.

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tion as well as to the practical applications of the principles involved. It is further a leading thought that after the fundamental principles have been mastered, a certain measure of specialization in the main lines of engineering is advisable, because of the great development of engineering in recent years, and the various phases which it is rapidly assuming. It is the endeavor of the college to combine a reasonable amount of specialization during the later years of its courses with a thorough grounding in the fundamentals during the earlier portions; and in carrying out this plan, it endeavors to make the mathematical and theoretical courses strong in the earlier years and the applied courses as strong in the later years, while the draughting and shop courses continue progressively from the beginning to the end. It also introduces sufficient foreign language to enable its graduates to read the professional German or French literature, and aims to give so much of a mastery of the English language as to enable its graduates to present professional subjects with ease, clearness, and effectiveness.

Requirements for Admission

The requirements for the admission of regular students are stated fully on page 60.

Preparation in Algebra for Engineering Courses

All students entering the College of Engineering are required to pass an examination in algebra before being admitted to the regular algebra classes. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the time when they begin their course*, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the examination will be required to take extra work in algebra during the first semester.

In performing the fundamental operations of algebra such as multiplication and division, the use of parentheses, the solving of numerical and literal equations of the first and second degree, the simplification of fractions and radicals, and the putting of problems into equations, it is of the first importance that the student should have distinct notions of the meaning and reasons for all that he does, and be able to state them clearly in his own language.

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He should be able to perform all these operations, even when somewhat complex, with rapidity, accuracy, and neatness. In his preparatory studies the student is advised to solve a great many practical problems, and to describe fully the reasons for the steps taken.

Students from other Colleges and Universities

Students from other institutions, who have pursued standard college courses equivalent to those of the University will be admitted, and will receive credit for such courses, upon the presentation of proper certificates of creditable standing and honorable dismissal. Students of other colleges of good standing who have not taken such standard courses, but who have studied one year in the college proper, may be admitted to the University provisionally. In such cases the amount of credit will be determined by the Committee on Advanced Standing. The University reserves the right to test by examination the records presented.

No person will be admitted to the University later than November 1st of the year in which he expects to graduate.

Admission of Special Students

Candidates under twenty-one years of age desiring to take special courses will be required to have the same qualifications as candidates for one of the regular courses.

Persons over twenty-one years of age, *who are not candidates for a degree* and who wish to take special studies, will be permitted to do so upon giving satisfactory evidence that they are prepared to take the desired studies advantageously. An examination in elementary algebra and geometry will be required. If they subsequently desire to become candidates for a degree, or to take a regular course, they must pass the required entrance examinations.

Student Advisers

In the selection and arrangement of studies, all students are under the supervision of advisers. It is the duty of the advisers to issue class cards at the opening of each semester, admitting students to their classes, to receive the regular semester reports from instructors, and special reports on deficient students, and to report to the faculty all cases requiring special action.

Reports to parents or guardians on the work of students, are sent from the Registrar's office at the end of each semester.

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Fees and Expenses

Tuition for residents of the State of Wisconsin	FREE
Tuition for non-resident students—per semester	$20.00
General fee—first semester	15.00
General fee—second semester	15.00
General fee for four weeks summer term, shop or field work	7.00
Engineering periodical fee for the year	1.00
Gymnasium fee—per semester	1.00

A laboratory fee of $2 per semester, for each two hours' work per week, is charged in all the engineering laboratories, and for the use of surveying instruments in the field.

Students working in any of the other laboratories of the University are also required to pay a fee or to make a deposit to cover the cost of the materials and repairs to instruments used by them.

At the beginning of the freshman year students must be prepared to meet an expenditure of about $70 for laboratory fees, drawing instruments text books, and military uniform. For the second semester these expenses will not exceed $10. For subsequent years the fees and text books will amount to $15 to $20 per semester.

Rooms, furnished and unfurnished, can be obtained in the city at reasonable rates. The cost of board in clubs is from $2.75 to $3 a week; in private families from $3 to $4 a week.

EQUIPMENT

Buildings

The work of the College is carried on in four large buildings. The main building is a four-story structure built for the special use of the College of Mechanics and Engineering. It contains the offices, recitation and drawing rooms, and laboratories for work in Mechanical Engineering, hydraulics, and the testing of materials. A second large building of simple construction contains the main electrical laboratories and the various departments for shop instruction. A third building contains the laboratories for Chemical Engineering, electrical testing and photometer rooms. Laboratory work in hydraulics is provided for in a large concrete building situated on the shore of Lake Mendota.

For chemistry the engineering students go to the Chemical

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Building, for physics and other natural sciences to Science Hall, and for language, mathematics, and other similar work, to the literary halls of the University. In this way the students of engineering come into daily contact with the students in the other courses, to the great advantage of all classes.

Libraries

For a general account of the library facilities of the University see page 39. The College of Mechanics and Engineering subscribes for about one hundred and seventy-five technical periodicals, and also purchases duplicate copies of standard engineering works of reference, one set of which, and the engineering periodicals, are kept in the engineering reading room, on the first floor of the Engineering Building, in order to facilitate the frequent use of them by the engineering students. The bound files of technical periodicals in the library are unusually complete, and additions are made every year.

Laboratories and Apparatus

The engineering laboratories are well equipped for purposes of instruction and investigation.

THE TESTING LABORATORY occupies the high sub-basement under the assembly room of the Engineer Building. It is supplied with a Riehlé torsion machine of one hundred and twenty-five thousand inch-pounds capacity, permitting the testing of a shaft fifteen feet long and three inches in diameter. There is also installed a new impact machine, a one hundred-thousand-pound Riehlé automatic and autographic testing machine, permitting the testing of materials of the larger sizes used in practice, and a beam testing machine, with a capacity of one hundred thousand pounds on a base of twenty-four feet. In addition to these there are also other Riehlé machines, and Olsen and Thurston machines for making tests in tension, compression, bending, and torsion. These machines are supplied with extensometers, clamps, devices for autographic records, and other special devices. A set of standard appliances, including a foundry rattler, is available for testing the wearing and cementing properities of road-building material.

THE CEMENT LABORATORY contains a full supply of necessary apparatus for making tests according to the American Society of Civil Engineers' standard; baths, self-recording thermometers,

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Boehme hammer, complete one-thousand-pound Riehlé and Fairbanks testing machines, etc.

THE HYDRAULIC LABORATORY.—This laboratory has recently been built on the shore of Lake Mendota, and equipped for experimental and research work.. The facilities are especially good for studying those problems where large quantities of water are needed. A direct-connected thirty-inch centrifugal pump furnishing up to 35,000 gallons of water a minute under a twelve-foot head has been installed. This water is delivered into a receiving chamber connected with various conduits and channels by means of which investigations covering the flows in such channels and conduits together with the effects thereon of dams, weirs, racks, submerged orifices, and other features encountered in water power work can be conducted. Four turbines have been purchased. The largest of these, a thirty-inch wheel, which will develop about fifty horse-power under the maximum available head, is equipped with a weir in the tail race, so that accurate determination in regard to quantities, velocities and efficiences under various heads and conditions can be made.

Apparatus has also been provided for the study of flows in straight and curved pipe and hose and losses due to sudden expansion and contraction and to valves and other forms of restricted passages; for the study of ground water flow and the friction of water through sands and gravels; and for the study of flow over free and submerged weirs of various types and of free and submerged orifices. A large assortment of accurate apparatus for the measurement of quantities, velocities and pressures, both in open and closed channels is available.

The laboratory is equipped with various types of impulse water-wheels, including tangential and Girard turbines, and with various reciprocating steam pumps, centrifugal pumps, vacuum pumps, jet pumps, and hydraulic rams. There is also provided a variety of water meters, among them the Venturi meter.

The regular course of instruction includes a careful selection of typical determinations, and opportunities are offered for advanced and research work in practical hydraulics and hydraulic machinery as well as in more advanced lines.

THE MECHANICAL LABORATORY.—The main laboratory, which is 74 feet by 50 feet, is a one-story addition in the rear of the Engineering Building, and is so placed that the wings, which ultimately will be added to the building, will leave this laboratory in the

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court thus created. The floor of this laboratory is on the same level as the main basement of the building; a gallery arranged especially for visitors runs around the whole laboratory, to which gallery one gains entrance from the first floor. A part of this wide gallery is partitioned off, a portion forming laboratories for special investigation. The main laboratory is well equipped with a variety of steam engines, specially arranged for experimental work. The most important of these is a fifty horse-power cross compound engine, so arranged that either cylinder can be supplied with live steam from the boilers and run as a single cylinder engine. The surface condenser and air pump can also be disconnected so that the engine may be run as a non-condensing one. Both cylinders and receiver are provided with steam jackets, which may be used at will. By means of a Proell governor the number of revolutions may be varied from 50 to 125. The cut-off of the steam may vary automatically between zero and ninety-five per cent. of the stroke.

The above engine is also connected to a fifty horse-power superheater, capable of superheating the steam 200 degrees F.

There is also installed a fifteen-ton refrigerating plant, consisting of a Corliss engine direct connected to a horizonal double-acting ammonia compressor. This machine is cross-connected to a five ton, vertical, three-cylinder, single-acting ammonia compressor belted to an electric dynamo. With the above compressors there are installed double pipe condensers and brine coolers, brine tanks, brine coils, and ventilating coils for the cooling of rooms.

This laboratory also contains a new twenty-five kilowatt steam turbine, a fifty horse-power two-stage air compressor directly connected to a compound condensing engine equipped with the Meyer valve gear; also various other types of steam, gas, gasoline, and hot air engines. Among the more important pieces of apparatus is a vertical three-cylinder gas engine of seventy-five horse-power capacity. There is also being installed a twenty-five horse-power gas producer and producer gas engine.

The laboratory is supplied with friction brakes, transmitting dynamometers of various kinds and capacities, a mercury column, and other means for testing steam and vacuum gauges and indicators, and various devices for special tests. There are also the necessary tanks, weighing apparatus, pyrometers, thermometers, calorimeters, some forty indicators, revolution counters, tachometers, recording gauges, reducing motors, water meters,

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etc., for making complete tests of the economy and capacity of boilers and engines. The laboratory is also supplied with a very large number and variety of injectors, and with special facilities for making tests of the same.

The boiler house of the University, which furnishes steam for nearly all of the buildings of the institution, both for heating and for power purposes, is also equipped in such a manner that experimental work with reference to the economy of boilers under various conditions may easily be carried out.

GAS ANALYSIS AND FUEL LABORATORIES.—In the eastern wing of the building are the seperate laboratories for gas and coal analysis; these rooms are both large and well lighted, and furnish excellent opportunities for extended researchs in these very important branches of study. The equipment includes the Carpenter Coal Calorimeter, Mahler Bomb Calorimeter, Junker Gas Calorimeter, and many forms of flue gas apparatus.

THE ELECTRICAL LABORATORIES are liberally supplied with scientific and commercial instruments, and are arranged for instruction and investigation. With the space and apparatus which are allowed through the generosity of past legislatures, the equipment has been made unusually complete in the lines of continuous current and single and polyphase alternating current generation and distribution, and commercial electrochemistry and electrometallurgy.

The dynamo collection consists of a large number of continuous current dynamos and motors (including several arc light dynamos) of various types and sizes and a similar number of alternating current dynamos and motors likewise of various types and sizes. They are specially installed for the purpose of instruction and experiment. Over fifty dynamos of various types are supplied for exclusive laboratory use. The largest one has a capacity of 270 horse power and the smallest one a capacity of a fraction of a horse power. The greater number have capacities ranging between five horse power and twelve horse power, which make them particularly adapted to the purpose of laboratory instruction. Two engines,—one a high speed Ideal engine of 150 horse power driving a Bullock continuous current dynamo and the other a Filer and Stowell Corliss engine of 300 horse power driving a National polyphase alternator,—are provided to furnish the necessary power, and electric currents are distributed over

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the laboratories for use in driving machinery, operating electrical furnaces, and other desirable purposes.

All the necessary apparatus is supplied for use in testing dynamos, including large lamp banks, transformer banks and water rheostats for loading generators; special Prony brakes, etc., for loading motors; and accurate electrical measuring instruments of the various useful types. An extensive collection of transformers and an equally comprehensive bank of integrating electric meters afford opportunities for routine testing and the study of problems relating to the design, construction and use of such apparatus.

Several large rooms are occupied by the appliances and apparatus required for instruction and experiments relating to electric batteries, electrolysis, electroplating, and electrometallurgy. Several smaller rooms are fitted up for experimental investigations. The equipment for these laboratories consists of dynamos and tanks for depositing metals and for other electrolytic processes, apparatus for cleaning, polishing, precipitating, filtering and other processes. An electric furnace room has been fitted up with rheostats and instruments for operating electric furnaces, power being supplied by the large generators described above; various electric furnaces for electrometallurgical operations requiring the intense heat of the electric arc are operated therefrom. Sources of electrical current, both alternating and direct, are available for experimental work, alternating pressures as high as 50,000 volts being employed. The equipment is one of the first and most complete of its kind.

Other rooms are assigned to work in electrical testing, measuring illumination, and various other branches of laboratory instruction and investigation. The rooms for electrical testing, photometrical experiments, and the investigation of high tension electrical phenomena are particulary well equipped.

A great number of amperemeters, voltmeters, wattmeters, Wheatstone bridges, variable self-inductance and mutual-inductance boxes, condensers, galvanometers, electrodynamometers, electric balances, 100,000 ohm and megohm resistances, Clark cells, Burgess electrometer testing sets, and other apparatus are supplied for general use, while standard apparatus for determining the adjustments of the general instruments is at hand. Special means are provided for the important functions of insulation testing, testing the magnetic qualities of metals (including a

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Ewing hysteresis tester, Ewing permeability bridge, magnetic balance, and other apparatus), for photometry of Nernst, arc, and incandescent lamps, and for measuring the distribution of illumination, for which the equipment is very full, three oscillographs, electrical condensers for use with alternating current circuits, etc. Apparatus is also provided for class-room demonstration, such as apparatus for demonstrating the phenemona of polyphase current transformation and polyphase motors, a fine set of models and charts illustrating the different forms of armature windings, etc.

A Thomson electric welder, located in the dynamo room, gives opportunity for instruction upon the electrical working of metals, and a transformer of twenty kilowatts capacity furnishes alternating current at 50,000 volts pressure for instruction in high pressure testing and the phenomena of high pressure electric power transmission. Alternating and polyphase (two-phase and three-phase) currents of the ordinary frequencies are on tap, at the switch-boards, and other frequencies may be generated at will by means of rotary converters, one of which has a capacity of thirty kilowatts.

The demand, from both undergraduate and graduate students, for accommodations in these laboratories has grown so rapidly that another large addition has just been made to the laboratory building for the purpose of increasing the already extensive facilities briefly described in the above paragraphs.

All electrical laboratory work is made to conform with, and to illustrate, the class-room instruction. Of the total number of hours given to instruction in the electrical engineering courses, about one-half is devoted to work in the laboratories. The laboratory work of graduate students is ordinarily in the nature of original experiments or investigations carried on under favorable conditions and directed through constant consultations with the instructor.

Chemical Engineering and Applied Electrochemistry Laboratories.—In the Chemical Engineering Building the first floor and basement are devoted to laboratories for instruction in chemical technology and applied electrochemistry. Two rooms are completely equipped for technical gas and fuel examinations, the equipment comprising all standard forms of analytical apparatus, gas and fuel calorimeters, and pyrometers. Steam stills, evaporators, centrifugals, vacuum dryers, digesters, vacuum and pressure

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pumps, melting, roasting, and calcimining furnaces, and other similar apparatus are installed for the study of chemical manufacture.

In the crushing and grinding room are various commercial types of coarse and fine crushers and disintegrators for treatment of ores and other raw materials. Magnetic, electrostatic, and other forms of separators are included in the equipment.

The applied electrochemistry equipment comprises a great variety of electrochemical appliances, a complete electroplating and refining room, battery room, two electric furnace rooms with various types of furnaces, and source of power both alternating and direct aggregating over 500 horse-power.

THE BRIDGE ENGINEERING DEPARTMENT owns a set of Fraenkel's autographic apparatus for the testing of bridges under moving trainloads. This includes two extensometers for measuring strains in members and a deflectometer for measuring vertical and lateral deflections. The department also possesses a large French model of a skew arch bridge, several large size iron models of bridge joints and a large collection of drawings and photographs, to which additions are constantly being made.

THE ASSAY LABORATORY is situated in the south part of the basement of the chemical laboratory. It has separate rooms for furnaces, tables, wet assaying, and balances. The furnace room is supplied with eleven crucible and three muffle furnaces, as well as a small gas plant. It has steam power, a Sturtevant blower, bullion rolls, a Blake ore crusher and other pulverizers. The table room has space for twenty-four students, and is well supplied with ordinary balances. In the balance room are first-class quantitative balances by Becker, and an Oertling gold balance.

THE SURVEYING LABORATORY.—By an agreement with the director of Washburn Observatory, the surveying laboratory shares in the free use of the extensive apparatus belonging to that observatory, and including, in addition to the large equatorial telescope and the meridian circle, collimators, transit micrometers, chronograph, sidereal and meantime clocks, zenith telescopes, a transit instrument of the broken type, chronometers, an altazimuth, a universal instrument of the German type, spherometer calipers, and a complete set of meteorological instruments.

In addition to this equipment the surveying laboratory contains all the portable, astronomical, and field instruments needed for extensive triangulation, topographic, hydrographic and rail-

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road surveys, including theodolites, altazimuth, tidal gauge, heliotropes, Kern precise-level and new U. S. C. & G. S. precise-level outfits, sounding apparatus, base-line apparatus, current meters, transits, compasses, levels, plane-tables, telemeters, and such special instruments as plani-meters, pantographs, sextants, computing machines, aneroid barometers, etc.

THE MACHINE SHOP affords excellent facilities for mechanical practice. It embraces a main machine room properly equipped; a carpenter shop supplied with wood-working machines; a forge room provided with forges and their equipment with blast and exhaust fan and annealing and case-hardening furnace; a foundry room whose equipment consists of a cupola, brass furnace, and core oven, with the necessary small tools; a wood-work room supplied with benches, carpenter tools, and wood turning lathes; and a pattern room furnished with the requisite tools. The shop is supplied with convenient lockers, closets, and washroom with hot and cold water.

BACTERIOLOGICAL LABORATORIES.—For a description of these see Index.

THE ENGINEERING MUSEUM contains a complete set of Schroeder's models for descriptive geometry, including shades, shadows, and perspective; also a small collection of Schroeder's kinematic models, besides a number of smaller models, made by students, illustrating problems in kinematics. An excellent industrial collection is in process of development.

The standards of weight and measure belonging to the state are kept in the civil engineering department, and all official comparisons are made here.

COURSES OF STUDY AND DEGREES

Four-Year Courses

The College of Engineering offers six systematic four-year courses as follows:

CIVIL ENGINEERING,
SANITARY ENGINEERING,
MECHANICAL ENGINEERING,
ELECTRICAL ENGINEERING,
APPLIED ELECTROCHEMISTRY,
CHEMICAL ENGINEERING,
GENERAL ENGINEERING, including an elective course in MINING ENGINEERING.

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Students who complete any one of the above four-year courses are graduated with the degree of *Bachelor of Science*, the diploma containing a specific designation of the course taken.

Higher Degrees

The degree of *Civil Engineer*, *Mechanical Engineer*, and *Electrical Engineer* are conferred as second degrees upon Bachelors of Science in the Civil, Mechanical, and Electrical Engineering Courses respectively, or in allied courses, (1) who pursue advanced professional study at the University for one year, and present a satisfactory project or thesis; or (2) who present suitable evidence of three years of professional work, of which one must be in a position of responsibility, and present a satisfactory thesis.

The degrees of *Master of Science* and *Doctor of Philosophy* are conferred upon graduates of the Engineering courses under the same requirements as apply to graduates of the College of Letters and Science. For a statement of these requirements see Index, under Degrees.

Five and Six-Year Courses

With the rapid development in the industrial and commercial life of the country, the work of the engineer is constantly being extended to new and wider fields. These changing conditions demand that the training of the engineer shall be as broad and thorough as possible, for experience shows that those who prove to be the most successful in handling large enterprises are those who have breadth of view coupled with high technical attainments. Very often, indeed, the technical requirements are of secondary importance compared to the ability to secure the economical execution of work through efficient organization. It is coming to be generally recognized that a four-year technical course following the high school course is not an adequate preparation for those who are to fill the most important positions in the engineering profession; and the University would urge upon all those who can afford the time to extend their studies over a period of five or six years. To those who can thus extend their course the University offers excellent opportunities for acquiring a more thorough preparation by a combination of studies of the College of Letters and Science with the technical studies of the College of Engineering. Provision is made for carrying out such a combination of studies in two ways, as indicated below.

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A

Courses leading to the B. S. Degree at the end of five years, and the professional degree (C. E., M. E., or E. E.) at the end of six years.

Courses of study have been arranged in which the work included in the regular four-year engineering course is distributed over a period of five years, and the time thus available is thrown open for election in any department of the University. The amount of time open for election is sufficient to enable the student to pursue satisfactorily some one or two lines of study in the College of Letters and Science, the College of Law, or the College of Agriculture, and thus greatly to strengthen his course. By taking such a five-year course a student may, for example, secure all of the essential studies of the Course in Commerce, together with a full Engineering course. Outlines of the five-year courses with suggested groups of electives are given on page 269.

At the end of the fourth year of the five-year course no degree is given unless the student so elects. In this case he is required to write a thesis, and the degree will be *Bachelor of Science, General Engineering Course*, the work of the first four years corresponding closely to that course. The degree conferred at the end of the five years is the same as that given on the completion of the regular four-year course in Civil, Mechanical, or Electrical Engineering. Students pursuing their work for a sixth year will be ranked as graduate students, and will receive the professional degree of C. E., M. E., or E. E.

B

Courses leading to the B. A. degree in four years, and to the B. S. degree in two additional years.

Students desiring to secure the collegiate degree at the end of four years, and the engineering degree at the end of two additional years, will register in the College of Letters and Science during their first four years of residence. They will elect during their collegiate course the studies of the first two years of the engineering course which they plan to pursue later, with the exception of shop work. This may be taken as an extra study, or may be taken during vacation time. Upon receiving the B. A. degree they will be admitted as juniors in the College of Enginering.

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Modern Language Requirements in all Engineering Courses

1. When German is offered for entrance: There is required a four-fifths course in German throughout the freshman year, and a three-fifths course in technical German for one semester of the sophomore year.

2. When French is offered for entrance: There is required a four-fifths course in French throughout the freshman year, and a three-fifths course in technical French for one semester of the sophomore year.

3. When four years of Latin is offered for entrance: There is required a four-fifths course throughout the freshman year, and a three-fifths course for one semester of the sophomore year in either French, German, or Spanish.

4. When neither a modern language nor Latin is offered for entrance: Students who present the full number of units, and who are graduates of accredited schools in Wisconsin, will be received without preparation in modern language, but subject to a condition in the same. In this case there will be required an additional amount of modern language equal to four hours for one year, this being in lieu of the entrance requirements.

Inspection Tours

An inspection trip is made by the junior class during the week of the Easter recess. In this tour great manufacturing establishments and other important private and public engineering works in Chicago, Milwaukee and elsewhere are visited. These tours are made under the guidance of the professors, and are required of all juniors, unless excused by the faculty. Students who may be excused are required to present a report at the opening of the senior year on assigned inspection work of a similar character.

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OUTLINE OF ENGINEERING COURSES

FOUR-YEAR COURSES

Freshman Year--All Courses

Note.—In reckoning the hours per week required for the various studies, two hours of laboratory, draughting room, field, or shop work count as one hour of class-room work, which is the unit in this outline.

FIRST SEMESTER

	Hours per Week.
German 2E*, French 5E, or Spanish 2EC‡	4
English 1	3
Mathematics 101, Algebra	5
Chemistry 2	3
Mechanical Drawing 1	3
†Topographical Engineering 2, or Shopwork 1	1

SECOND SEMESTER

German 2E, French 5E, or Spanish 2EC	4
English 1	3
Mathematics 102 and 103 (Trigonometry and Analytical Geometry)	5
Chemistry 2	3
Mechanical Drawing 2	3
†Topographical Engineering 2 or Shopwork 2	1

CIVIL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

Mathematics 105 (Calculus)	5
Physics 101	5

*The figures in the text refer to the numbers of the courses of study.

†Topographical Engineering is required of Civil Engineers, and Shop-work of Mechanical and Electrical Engineers.

‡Students taking second year Spanish must take it in the first semester.

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	Hours per Week.
Topographical Engineering 3, Elementary Surveying....	4
Mineralogy 2, or Chemistry 12.....	2
Topographical Engineering 1 (Topographic Drawing)....	1
Mechanical Drawing 3 (Descriptive Geometry).....	3

SECOND SEMESTER

Mathematics 105 (Calculus).....	3½
Physics 101.....	5
German 3E, French 16E.....	3
Mechanics 1, 2.....	5
Topographical Engineering 1 (Drawing).....	1
Topographical Engineering 4 (Advanced Surveying).....	3
*Topographical Engineering 6 (Trigonometric Survey)	4 weeks

Junior Year

FIRST SEMESTER

Mechanics 2, 3.....	6
Mechanics 4 (Testing Laboratory).....	2
Steam Engineering 7.....	2
Mechanical Laboratory 3.....	1
Structural Engineering 1 (Structural Details).....	2
Railway Enginering 1, 2.....	5
Hydraulic Engineering 1, 2.....	3

SECOND SEMESTER

Mechanics 4.....	2
Railway Engineering 3 (Maintenance of Way).....	2
Structural Engineering 2, 3, 4a (Masonry).....	4
Structural Engineering 5a (Bridge Stresses).....	3
Structural Engineering 7a (Bridge Design).....	3 or 1
Astronomy 6.....	4
or Topographical Engineering 5 (Geodesy).....	2
Hydraulic Engineering 10.....	2
Elective	1 to 3

Inspection tour of engineering works.

Senior Year

FIRST SEMESTER

Structural Engineering 4b (Dams and Stereotomy).....	3

*May be taken at the end of either the sophomore or junior year.

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	Hours per Week.
Structural Engineering 6, 7b (Bridge Design)	4 or 6
Hydraulic Engineering 11 (Water Supply)	3
Electrical Installations 11	2
Applied Electromagnetism 2	1
Thesis and Elective	7 or 5

SECOND SEMESTER

Railway Engineering 7 (Tunnels and Substructures)	1
Rivers and Canals 1	1
Electrical Installations 11	2
Applied Electromagnetism 2	1
Contracts and Specifications 1	1
Thesis and Elective	14

In the senior year opportunity is given to select groups of electives in Railway, Structural, Hydraulic or Geodetic Engineering; or the student may select studies so as to secure a more general course. Details of the various courses offered are given on subsequent pages.

For the statement of the five-year course see page 267.

SANITARY ENGINEERING COURSE

Freshman and Sophomore Years

Same as the Civil Engineering Course.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Hydraulic Engineering 1, 2	3
Railway Engineering 1, 2	5
Chemistry 12	3
Structural Engineering 1	2

SECOND SEMESTER

Mechanics 4 (Testing Laboratory)	2
Railway Engineering 3 (Maintenance of Way)	2
Structural Engineering 2, 3, 4a (Masonry)	4
Structural Engineering 5a, 7a (Bridge Stresses, Roof and Bridge Design)	6

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	Hours per Week.
Hydraulic Engineering 10	2
Chemistry 14 (Water Analysis)	5
*Topographical Engineering 6 (Trigonometric Survey)	4 weeks

Inspection tour of enginering works.

Senior Year

FIRST SEMESTER

Steam Engineering 7 (Steam Engine)	2
Mechanical Laboratory 3	1
Structural Engineering 4b (Dams and Stereotomy)	2
Hydraulic Engineering 11, 13 (Water Supply)	5
Steam Engineering 8 (Heating and Ventilation)	3
Biology of Water Supplies	5
Electrical Installations 11	2
Applied Electromagnetism 2	1

SECOND SEMESTER

Railway Engineering 7 (Tunnels and Substructures)	1
Hydraulic Engineering 12, 13 (Sewerage and Drainage)	5
Roads and Pavements	2
Electrical Installations 11	2
Applied Electromagnetism 2	1
Contracts and Specifications	1
Thesis and Elective	8

MECHANICAL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

Mathematics 104 (Analytical Geometry, Calculus)	5
Physics 101	5
Shop Work 3, 4, 5, 7 (Vise-work in Iron and Forging)	4
German 3E, French 16E, or Spanish 5E	3
Mechanical Drawing 3 (Descriptive Geometry)	3

SECOND SEMESTER

Mathematics 104	5
Mechanics 1, 2	5
Physics 101	5

*May follow either the sophomore or junior year.

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	Hours per Week.
Machine Design 1 (Kinematics)	4
Shop Work 6 (Machine Work)	1

Shop-work; four weeks summer term. May be taken during any summer vacation period.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Steam Engineering 1, 2 (Thermodynamics, Heat Engines)	5
Machine Design 3	5
Shop Work 8, 9 (Machine Work and Tool Making)	2

SECOND SEMESTER

Mechanics 4	1
Hydraulic Engineering 1, 2	3
Steam Engineering 3, 4 (Boilers, Valve Gears)	5
Mechanical Laboratory 1	1½
Machine Design 3	5
Shop Work 10 (Machine Construction)	3
Elective	2 or 3

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Applied Electro-Magnetism 2, 3 (Electrical Machinery, Laboratory)	5
Mechanical Laboratory 2	1½
Hydraulic Engineering 4	3
Steam Engineering 5 (Steam Engine Design, optional)	5
Machine Design 5 (optional)	5
Thesis and Elective	6

Inspection tour through industrial establishments.

Either Steam Engineering 5, or Machine Design 5, must be taken, and it is recommended that the class work of the study not taken be elected in addition. The study selected must be taken for the entire year.

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SECOND SEMESTER

	Hours per Week.
Contracts and Specifications	1
Alternating Currents 2, 7 (Elementary Applied)	5
Steam Engineering 5 (Steam Engine Design, optional)	5
Machine Design, Machine Elements, Transmission of Power (optional)	5
Mechanical Laboratory 2	1
Thesis and Elective	8

For statement of five-year course see page 267.

ELECTRICAL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

French 16E, German 3E, or Spanish 5E	3
Mathematics 104 (Analytical Geometry and Calculus)	5
Physics 101	5
Chemistry 12	3
Machine Design 1 (Kinematics)	4

SECOND SEMESTER

Mathematics 104	5
Physics 101	5
Chemistry 12	2
Machanics, 1, 2	5
Mechanical Drawing 3 (Descriptive Geometry)	3

Shop work; four weeks summer term. May be taken during any summer vacation period.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Physics 104 (Precision of Measurement)	2½
Applied Electromagnetism 1 (Electromagnetism and Dynamos)	3
Steam Engineering 6 (Thermodynamics)	2
Machine Design 2 (Elementary Design)	3
Shop Work 8, 9 (Machine Work and Tool Making)	2

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SECOND SEMESTER

	Hours per Week.
Hydraulic Engineering, 1, 2	3
Steam Engineering 6 (Thermodynamics)	2
Mechanical Laboratory 1	1½
Applied Electro-Magnetism 1, 2 (Electro-Magnetism and Dynamos)	5
Electrical Installations 2 (Electrical Testing)	3
Mechanics 4	1
Machine Design 2	2
Elective in Civil and Mechanical Engineering	3

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Alternating Currents 1, 2	5
Applied Electro-Magnetism 2 (Testing Direct Current Dynamos)	2
Mechanical Laboratory 2	1½
Hydraulic Engineering 4	3
Electives from: Electrical Installations 3, 5, 7, 8, 10, Applied Electrochemistry 1, or Ry. Engineering 4	7
Thesis	2

SECOND SEMESTER

Alternating Currents 1, 2	3
Electives from: Electrical Installations 3, 4, 5, 6, 8, Alternating Currents 3, 4, Applied Electrochemistry 2, Structural Engineering 9	10
Contracts and Specifications	1
Thesis and Elective	5

For a statement of the five-year course see page 267.

Graduate Courses

Graduates and advanced students are offered instruction in advanced theory, design, and experimental investigations relating to electrical engineering and applied electrochemistry, as is more fully explained in later pages under Departments of Instruction and also under the Graduate School. (See Index.)

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APPLIED ELECTROCHEMISTRY COURSE

Sophomore Year

FIRST SEMESTER

	Hours per Week.
Mathematics 103, 104 (Analytical Geometry, Calculus)	5
Physics 101	5
Machine Design 1 (Kinematics)	3
German 3E, or French 16E	3
Chemistry 12 (qualitative)	4

SECOND SEMESTER

Mathematics 105	3½
Physics 101	5
Mechanics 1, 2	5
Chemistry (Organic)	4
Mechanical Drawing 3 (Descriptive Geometry)	3

Shop work; four weeks summer term. May be taken any summer vacation period.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Physics 104 (Precision of Measurements)	3
Applied Electro-Magnetism 1, 2 (Electro-Magnets and Dynamos)	3
Chemistry 12 (Quantative)	3
Chemistry 31 (Electrochemistry)	4

SECOND SEMESTER

Applied Electro-Magnetism 1, 2 (Electro-Magnets and Dynamos)	5
Mechanics 4 (Testing Laboratory)	1
Chemistry 31 (Electrochemistry)	5
Chemical Technology 1	3
Chemistry 12 (Quantitative)	3
Hydraulics 3, 4	3

Inspection tour through industrial establishments.

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Senior Year

FIRST SEMESTER

	Hours per Week.
Applied Electrochemistry 1	5
Chemical Technology 5	3
Electrical Installations 3	2
Steam Engineering 7	2
Mechanical Laboratory 3	2
Thesis and Elective	6

SECOND SEMESTER

Alternating Currents 7	3
Applied Electrochemistry 2	5
Chemical Technology 4	5
Contracts and Specifications	1
Thesis and Elective	6

CHEMICAL ENGINEERING COURSE

Second Year

FIRST SEMESTER

German 3E or French 16E	3
Mathematics 105 (Calculus)	5
Physics 101	5
Mechanical Drawing 3	3
Chemistry 12 (qualitative)	4

SECOND SEMESTER

Mathematics 105 (Calculus)	3½
Mechanics 1, 2	5
Physics 101	5
Machine Design 1	3
Chemistry (Organic)	4

Shop work; four weeks summer term; may be taken during any summer vacation.

Third Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Physics 104 (Precision of Measurement)	3

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	Hours per Week.
Steam Engineering 6	2
Machine Design 2	3
Chemistry (quantitative)	3
Physical Chemistry	2

SECOND SEMESTER

Mechanics 4 (Testing Laboratory)	1
Machine Design 4	2
Steam Engineering 6	2
Mechanical Laboratory	2½
Hydraulics 1, 2	3
Structural Engineering 2	2
Chemistry (quantitative)	2
Physical Chemistry	3
Chemical Technology 1	3

Inspection tour through industrial establishments.

Fourth Year

FIRST SEMESTER

Electrical Installations 11	2
Applied Electromagnetism 2	1
Topographical Engineering 8	3
Structural Engineering 11 (Building Construction)	2
Mechanical Laboratory 2	1½
Chemical Technology 2	2
Chemical Technology 5	3
Thesis and Electives	6

SECOND SEMESTER

Electrical Installations 11	2
Applied Electromagnetism 2	1
Hydraulic Engineering 5	3
Chemical Technology 3	2
Chemical Technology 4	5
Thesis and Electives	7

The above course leads to the degree of B. S., Chemical Engineering Course.

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Fifth Year

FIRST AND SECOND SEMESTERS

	Hours per Week.
Metallurgy	3
Chemical Technology 6	3
Thesis and Electives	12

Leads to the degree of Chemical Engineer.

Courses from which electives may be chosen:

Applied Electrochemistry.
Physical Chemistry.
Advanced Inorganic Chemistry.
Advanced Organic Chemistry.
Geology.
Mineralogy.
Assaying.
Building Construction.
Bacteriology.
Metallurgy.
Chemical Technology 7 and 8.
Steam Engineering 9. (Gas and Gasoline Engines.)

For specializing in gas engineering the following studies are to take the place of the electives:

Advanced Organic Chemistry. Both semesters.
Chemical Technology 7 (Photometric Measurement).
Chemical Technology 8 (Gas Manufacture and Distribution). Both semesters.
Steam Engineering 9 (Gas and Gasoline Engines).
Mechanical Laboratory.

GENERAL ENGINEERING COURSE

There is a strong demand in various industrial and commercial lines for technically educated men who cannot be classified as engineers, properly speaking. Superintendents and managers, presidents and secretaries, owners and members of boards of directors, of all large manufacturing and commercial enterprises, as well as of all transportation, lighting, and power companies, should be acquainted with the fundamental principles and practices of some of the ordinary applications of science to modern industry. For the practical education of such men a General Engineering Course has been established, with only the fundamental engineering sciences required, in addition to the regular work of

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the freshman year. This leaves about one-third of the entire time to be filled by such elective studies in the College of Engineering, or in other departments, as the student may find best suited to his particular needs. It may well be also that some students who expect to practice engineering will prefer to elect a considerable portion of their course in place of taking any one of the fixed engineering courses.

The subjects given below are the ones which are required, though some variation will here be allowed. Elective studies must be arranged to secure continuity of work and must be approved by the student adviser. At least 15 hours per week must be taken of the studies listed in the Departments of Instruction in the College of Engineering, see Index.

Freshman Year

All the studies of this year are required, and are the same as in the other engineering courses.

Sophomore Year

FIRST SEMESTER

	Hours per Week.
Mathematics 105	5
Physics 101	5
Mechanical Drawing 3 (Descriptive Geometry)	3
Elective (History, 3 hours recommended)	4
German 3E, French 16E; either first or second semester	3

SECOND SEMESTER

Mathematics 105 (Calculus)	3½
Physics 101	5
Mechanics 1, 2	5
Elective (Economics 1, 3 hours recommended)	6

Shop or field work, four weeks' summer term; may be taken at the end of either the sophomore or junior year.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Steam Engineering 6	2

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	Hours per Week.
Hydraulic Engineering 1, 2	3
Elective	7

SECOND SEMESTER

Mechanics 4 (Testing Laboratory)	1
Steam Engineering 6	2
Mechanical Laboratory 1	1½
Elective	16

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Applied Electro-Magnetism 2 and 3	5
Elective	15

SECOND SEMESTER

Thesis and Elective	20

A two or three-hour course in Hydraulic Engineering must be taken in the senior year.

MINING ENGINEERING GROUP OF ELECTIVES

Students who take the General Engineering Course may group their electives in chemistry, mineralogy, and geology in such a way as to prepare them for mining engineering. The arrangement of these electives, together with such other studies as are most desirable in a mining course, is as follows:

Sophomore Year

FIRST SEMESTER

Chemistry 12, 13	5
Topographical Engineering 3	3½

SECOND SEMESTER

Chemistry 12, 13	5
Topographical Engineering 9, 10	4

Junior Year

FIRST SEMESTER

Geology 6	5
Geology 1	5

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SECOND SEMESTER

	Hours per Week.
Geology 6	5
Geology 2, 3	5
Structural Engineering 2	2

Senior Year

FIRST SEMESTER

Railway Engineering 1	4
Machine Design 3	2
Geology 11 and one of courses 14 to 18	6
Mineralogy 8	3

SECOND SEMESTER

Railway Engineering 7	2
Structural Engineering 9	3
Geology 11, 12 and one of courses 14 to 18	6
Geology 9, 10	5

The course of study here outlined is arranged with special reference to the needs of those who expect to work in the Lake Superior region.

The professors in the department of Geology, in the College of Letters and Science, have for many years been engaged in the investigation of the mining resources of the Northwest for the United States Geological Survey, and they offer training for mining work in this field, and especially in the iron ores, which is surpassed in no other institution. Students who continue work in geology in a graduate course may qualify themselves for work in mining geology (as distinguished from technical mining engineering), judging ore districts and ore deposits, directing exploration and mining development, and better qualifying themselves for mine superintendency.

If desired, students taking the mining group will usually be able to obtain their degree in Mining Engineering at a mining school in one additional year.

A five-year course for Civil Engineering students offering larger options in mining geology and similar elections along any line of geological work, and leading to the degree of *Bachelor of Science, Civil Engineering Course*, is outlined below. This is a more desirable course than the one given above.

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FIVE OR SIX-YEAR COURSES.

COURSE IN CIVIL ENGINEERING

Leads to the degree of *B. S., Civil Engineering Course*, at the end of five years, and the degree of *C. E.* at the end of six years.

First Year

FIRST AND SECOND SEMESTERS

	Hours per Week.
Mathematics 101, 102, 103	5
German 2E, French 5E or Spanish 2EC	4
Chemistry 2	3
English 1	3
Elective	3

Second Year

FIRST AND SECOND SEMESTERS

Mathematics 105	5
Physics 101	5
Mechanical Drawing 1 and 2	3
Elective	5

Third Year

FIRST SEMESTER

Mechanics 1 and 2	5
Mechanics 4	2
Topographical Engineering 2 and 3	4
Mechanical Drawing 3	3
Elective	4 to 6

SECOND SEMESTER

Mechanics 2 and 3	6
Mechanics 4	1
Topographical Engineering 1 and 4	4
Structural Engineering 2, 3, 4a	4
Elective	4 to 6

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Fourth Year

FIRST SEMESTER

	Hours per Week.
Hydraulic Engineering 1, 2	3
Steam Engineering 7	2
Mechanical Laboratory 1	1
Railway Engineering 1	5
Structural Engineering 1, 4b	5
Elective	5

SECOND SEMESTER

Hydraulic Engineering 10	2
Structural Engineering 5a 7a	6
Railway Engineering 3	2
Topographical Engineering 5	2
or Astronomy	4
Elective	5 to 7

Fifth Year

FIRST SEMESTER

Structural Engineering 6, 7b	4
Hydraulic Engineering 11	3
Elective in Engineering	7
Thesis and Elective	6

SECOND SEMESTER

Railway Engineering 7	1
Rivers and Canals	1
Engineering Contracts and Specifications	1
Elective in Engineering	11
Thesis and Elective	6

Sixth Year

Sixth year work will be arranged for as graduate work.

The thesis for the baccalaureate degree may be written in any department of the University, subject to the approval of the Engineering faculty.

Courses in Mechanical and Electrical Engineering, and in Applied Electrochemistry, similar to the foregoing course in Civil Engineering have been arranged in which the special work of the

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respective course replaces the Civil Engineering studies here given. Detailed statements of these courses, together with full information regarding the various departments, are contained in the special announcement of the College of Engineering, which may be had by addressing the Dean of the College.

COMBINATION ENGINEERING AND COMMERCE COURSE

By electing the following group of studies in Economics, students pursuing the five-year course may get all the essential studies of the Course in Commerce, together with a full engineering course.

First Year: Physiography and Physical Geography, 3 hours.

Second Year: Elementary Economics, 3 hours for one semester; Commercial Geography 3 hours for one year.

Third Year: Money and Banking and Transportation 3 hours; Commercial Law 3 hours.

Fourth Year: Group in Banking and Finance, Transportation, or the Manufacturing Industries, 3 hours; Business Administration 2 hours.

Fifth Year: Business Administration 2 hours; Group and Thesis 4 hours (if the thesis is taken in Commerce).

ELECTIVE GROUP IN GEOLOGY

For Civil Engineering students desiring to enter mining or geological work, the following group of studies is suggested:

Third Year: Mineralogy, 5 hours.

Fourth Year: General Geology, 5 hours.

Fifth Year: Economics, Structural or Metaphoric Geology, 5 hours. To be selected from Geology: Courses 11, 12, 14, 15, 16, 17. Elective work in Advanced Geology, 5 hours.

Students selecting this group should take Surveying in their second year.

Elections for Students in the College of Letters and Science

Students who can plan to graduate in engineering, after taking a degree in the College of Letters and Science, should aim to make the following elections during their undergraduate course, in order that the engineering course may be completed in two additional years:

Mathematics 101 to 105; Physics 101; Chemistry 2; Mechanical

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Drawing 1, 2, and 3; Topographical Engineering 2, 3, and 4, or Machine Design 1; Applied Mechanics 1.

It is well also to elect some or all of the freshmen and sophomore shop work, as an extra study.

Graduation in More Than One of the Engineering Courses

Graduates in any of the engineering courses may graduate in any other engineering course after one year of additional study. Students who contemplate doing this should, however, make their elections, especially in the senior year, with this end in view.

DEPARTMENTS OF INSTRUCTION

The unit of reckoning is one hour of class-room work per week, making a one-fifth study. Two hours of draughting, laboratory, field, or shop work (which require no outside preparation) count as one hour of recitation.

ENGLISH

ASSISTANT PROFESSOR PYRE, DR. BEATTY, MR. COOK, MR. DICKINSON, MR. NEIDIG, MR. NELLES, MR. ROE, AND DR. WOOLLEY

1. Freshman English. English prose style. Composition. *Three hours a week throughout the year.*

GERMAN

DR. MEISNEST, DR. GOODNIGHT, DR. HAUSSMANN, DR. KIND, AND MR. HAERTEL

2E. *First semester:* Review of grammar. Narrative and historical prose.

Second semester: One drama and introductory scientific prose. *Four times a week at* 8, 9, 2, *and* 3. Four sections.

3E. Advanced scientific prose and current engineering literature. *First or second semester; M., W., F., at* 9 *and* 10. Two sections. For sophomores.

FRENCH

MR. MACNISH AND MR. BOARDMAN

5E. Elementary French for Engineers. In the first semester the work will be for the most part the same as that in course

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1 (College of Letters and Science), except that more attention will be paid to reading. During the second semester Herdler's *Scientific Reader* and other work of similar character will be introduced. *Tu., W., Th., F., at* 8. Mr. BOARDMAN. *M., Tu., W., Th., at* 9. Mr. MACNISH. *Tu., W., Th., F., at* 2. Mr. MACNISH.

16E. Second Year French for Engineers. Continuation of course 5E. Scientific prose of general and technical interest. Current scientific literature. *First semester. Course is repeated second semester. M., W., F., at* 12. Mr. MACNISH.

SPANISH

MR. SEYMOUR AND MR. COOL

2EC. Elementary. Giese's *First Spanish Book* and other easy prose. *Throughout the year; M., Tu., W., Th., at* 9. Mr. SEYMOUR. *Tu., W., Th., F., at* 8. Mr. COOL.

5E. Second Year. Scientific Spanish for Engineers. *El Hierro, La Chispa, Electrica,* or *La Maquina de Vapor. First semester; M., W., F., at* 8. Mr. SEYMOUR.

Courses 7C and 8C (see Index under French) are also open to students in engineering.

MATHEMATICS

PROFESSOR SLICHTER, MR. WOLFF, MR. PERSONS, MR. PEOTTER, MR. MORITZ, MR. E. R. SMITH, MR. LEHMAN

101. Algebra. *First semester; M., Tu., W., Th., F.,* (90 *hours in class-room*).

Required of freshmen in engineering.

102. Plane Trigonometry. *Part of second semester; M., Tu., W., Th., F.,* (36 *hours in class-room*).

Required of freshmen in engineering.

103. Analytical Geometry. *Part of second semester; M., Tu., W., Th., F.,* (54 *hours in class-room*).

Required of freshmen in engineering.

104. Calculus and Analytical Geometry. For all courses except Civil Engineering. *Throughout the year; M., Tu., W., Th., F.,* (180 *hours in class-room*).

105. Calculus. For the Civil Engineering course. *First semester and part of second semester; M., Tu., W., Th., F.,* (166 *hours in class-room*).

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PHYSICS

ASSISTANT PROFESSOR TAYLOR, MR. COLTON, MR. MILLER, MR. TERRY, DR. INGERSOLL, MR. WORTHING, MR. WETZEL, MR. WILLIAMS, MR. WENIGER, MR. SPENCE, MR. WICKENDEN, AND MR. SUYDAM

101. General Lectures and Introductory Laboratory Practice. Required of sophomores in engineering. *Throughout the year. Lectures, M., Th., at* 4. Assistant Professor TAYLOR. *Two recitations in sections, at hours to be assigned.* Mr. TERRY, Mr. COLTON, and Dr. INGERSOLL. *Two laboratory periods a week.* Mr. MILLER and assistants.

104. Laboratory Course in Electrical and Magnetic Measurements. Testing and calibration of electrical instruments, and determination of constants. Required of juniors in Electrical Engineering. *Two and one-half hours a week. First semester.* Assistant Professor TAYLOR and Mr. TERRY.

105. Advanced Electrical Measurements. Elective for those who have had course 104 or its equivalent. The determination of self-inductance, mutual inductance, capacity, etc., by the most recent methods. *Hours and credits to be arranged.* Assistant Professor TAYLOR and Mr. TERRY.

CHEMISTRY

PROFESSOR DANIELLS, PROFESSOR KAHLENBERG, ASSOCIATE PROFESSOR LENHER, DR. KOELKER, AND ASSISTANTS

2. General Chemistry. For freshmen in the College of Engineering. *Three-fifths study. Two lectures, one recitation, and one three-hour laboratory period a week throughout the year.* Associate Professor LENHER and assistants.

4. Chemical Preparations. Laboratory course in the preparation of typical inorganic compounds. Associate Professor LENHER.

12. Analytical Chemistry. For sophomore engineers. *Two-fifths study. First semester*: Qualitative analysis. *Second semester*: Quantitative analysis. Professor DANIELLS, Mr. SHINN, and Dr. VOEGTLIN.

13. Quantitative Chemical Analysis. For junior engineers. Continuation of course 12. The analysis of metals, ores, minerals, and economic products. *Three-fifths study throughout the year.* Professor DANIELLS and Mr. SHINN.

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14. Water Analysis. For students in sanitary engineering. *Second semester; five-fifths study.* Professor DANIELLS.

20. Organic Chemistry. *First semester; five-fifths study.* Work of a similar character may be continued in the second semester. Required of students in applied, electrochemistry. Dr. KOELKER.

24. Advanced Organic Chemistry. One lecture a week throughout the year on selected topics. In 1906-07 the subjects will be selected from the aliphatic series. Dr. KOELKER.

30. Physical Chemistry. The lectures and recitations are supplemented by laboratory exercises in physicochemictl measurements, thus making a full study. This course must be preceded by Chemistry 1. *Five-fifths study throughout the year. Lectures and recitations, first semester; Tu., Th., at* 8. *Second semester; W., F., at* 8. Professor KAHLENBERG and Dr. PATTEN.

31. Electrochemistry. Lectures and recitations. Laboratory work in electrochemical measurements and in electrolysis of various chemical compounds supplements the lectures, and with them makes a *five-fifths study. Throughout the year. Lectures during the first semester; W., F., at* 8. Professor KAHLENBERG and Dr. PATTEN.

32. Thermal Chemistry. *Lectures M., at* 8, *and one three-hour laboratory period a week. Second semester.* Professor KAHLENBERG.

35. Advanced Physical Chemistry. Lectures on selected topics. *Second semester; Th., at* 8. In 1905 the lectures will be on the subject of photochemistry. Professor KAHLENBERG.

36. Advanced Electrochemistry. A course in the preparation of chemical compounds by means of electrolysis and the electric furnace. *Full study throughout the year.* Weekly conferences accompany the laboratory work. *Hours to be arranged.* Professor KAHLENBERG and Dr. PATTEN.

37. Research Work in Physical Chemistry. *Daily throughout the year; hours to be arranged.* Professor KAHLENBERG.

50. Assaying. A course in practical assaying. *Second semester; hours to be arranged.* Associate Professor LENHER and Mr. TIBBALLS.

70. The Chemistry of Gas Manufacture. Lectures and reports. Primarily for junior and senior engineers. *Two-fifths credit. First semester; Tu., Th., at* 12. Dr. PATTEN.

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ASTRONOMY

PROFESSOR COMSTOCK

6. Astronomical Practice. Theory and use of the simpler instruments used in astronomical and geodetic field work. Determination of time, latitude, and the direction of the meridian, together with drill in numerical computations. *Second semester; M., Tu., W., Th.,* 2 *to* 4.
   Elective for juniors in Civil, Sanitary, and General Engineering.
7. Advanced Field Astronomy. Spherical astronomy, the method of least squares, theory and practice of the more refined methods for the determination of time, latitude, and azimuth. *Two hours a week throughout the year.*
   Open to election by students who have completed course 6.

GEOLOGY AND MINERALOGY

PROFESSORS LEITH, HOBBS, AND FENNEMAN, AND MR. HOTCHKISS AND MR. BLACKWELDER

1. General Geology. *First semester; M., Tu., W., Th., F., at* 12. Professor FENNEMAN.
2. Applied Geology, including economic geology, map work and field geology. *Second semester; five-fifths credit.* Professors LEITH and FENNEMAN, and Mr. BLACKWELDER.
4. Physical Geography. *First semester; M., W., F., at* 10. Professor FENNEMAN and assistants.
5. Physiography of the United States. *Second semester; M., W., F., at* 10. Professor FENNEMAN and assistants.
6. General Course in Mineralogy. *First semester; M., Tu., W., Th., F., at* 11. *Second semester; M., Tu., W., Th., F., (a) at* 11, *(b) after Easter,* 11 *to* 1. Professor HOBBS and Mr. HOTCHKISS.
7. Short Course in Mineralogy. Required of Civil Engineers in the sophomore year. Given in two divisions: Division A, *M., Th.,* 2 *to* 4; Division B, *Tu., F.,* 2 *to* 4. *Throughout the year; two-fifths credit.* Professor HOBBS and Mr. HOTCHKISS.
8. Optical Mineralogy. *First semester; M., W., F.,* 9 *to* 11. Professor HOBBS and Mr. HOTCHKISS.
9. Field Petrology. *Second semester; Tu., Th.,* 9 *to* 11. Professor HOBBS and Mr. HOTCHKISS.

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10. Microscopic Petrology. *Second semester; M., W., F., 9 to 11.* Professor HOBBS and Mr. HOTCHKISS.
11. Economic Geology. *Throughout the year; M., W., F., at 4.* Alternates with course 15. Professor LEITH.
12. Historical Geology. *First semester; at 9. Five-fifths credit.* Mr. BLACKWELDER.
13. Systematic Paleontology (Invertebrates). *Second semester; three-fifths credit.* Mr. BLACKWELDER.
14. Principles of Structural Geology. *First semester; Tu., Th., at 4.* Professor LEITH.
15. Principles of Metamorphism. Application to the deposition of ores. *Three-fifths study throughout the year at 4.* Alternates with course 11. Professor LEITH.
16. Metamorphic Rocks. Laboratory work, supplementary to course 15. *Throughout the year; Tu., W., 2 to 4.* Professor LEITH and Mr. KATZ.
17. Principles of pre-Cambrian Geology. *Second semester; Tu., Th., at 4.* Alternates with course 18. Professor LEITH.
18. Lake Superior Geology. *Second semester; Tu., Th., at 4.* Alternates with course 15. Professor LEITH.
19. Advanced Petrology. *Credit given on work done.* Professor HOBBS and Mr. HOTCHKISS.
20. Advanced Crystallography. *Credit given on work done.* Professor HOBBS and Mr. HOTCHKISS.
21. Areal Physiography. *Credit given on work done.* Professor FENNEMAN.
22. Research Work for Graduates. A full or double study running through the year, as desired by individual students.
23. Geological Seminary. *F. at 5.*

BIOLOGY OF WATER SUPPLIES

ASSISTANT PROFESSOR FROST

8. Biology of Water Supplies. Lectures and laboratory work. Adapted to the needs of students in Sanitary Engineering. *First semester; full study.* Assistant Professor FROST.

MECHANICAL DRAWING

PROFESSOR PHILLIPS, MR. MILLAR, MR. BOYNTON, AND MR. MOLES

1. Elements of Drawing. Geometrical constructions; orthographic, isometric, and cabinet projections; freehand let-

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tering and sketching. Tracy's *Mechanical Drawing. First semester; one lecture, one recitation, and one two-hour drawing period weekly; three-fifths credit.* Professor PHILLIPS, Mr. BOYNTON, and Mr. MOLES.

Required of freshmen in engineering.

2. Elements of Drawing. Sections and intersections; freehand lettering; shades, shadows, and perspective. Tracy's *Mechanical Drawing. Second semester; one lecture, one recitation, and one two-hour drawing period weekly; three-fifths credit.* Professor PHILLIPS, Mr. BOYNTON, and Mr. MOLES.

Required of freshmen in engineering.

3. Descriptive Geometry. Problems relating to the point, line and plane. The generation and classification of lines and surfaces; planes tangent to surfaces of single and double curvature; intersections, developments, and revolutions. Notes on *Descriptive Geometry. First semester* for students in Civil and Mechanical Engineering. *Second semester* for students in Electrical Engineering. *One lecture, one recitation, and two two-hour drawing periods weekly; three-fifths credit.* Professor PHILLIPS, Mr. MILLAR, Mr. MOLES, and Mr. BOYNTON.

Required of sophomores in engineering.

4. Freehand Lettering. A continuation of the lettering work in courses 1 and 2. *First semester; two one-hour periods weekly; one-fifth credit.* Mr. KINNA.

Electives for engineering students.

5. Sketching. In perspective. Architectural, bridge and machine details. *Second semester; one two-hour period weekly; two-fifths credit.* Mr. BOYNTON.

Elective for engineering students.

6. Mechanical Lettering. Roman and Gothic styles. *Second semester; one two-hour period weekly; two-fifths credit.* Mr. BOYNTON.

Elective for engineering students.

7. Finished Drawings. Drawings finished in line and color. Preparation of drawings for zinc etching process. *First semester; one two-hour period weekly; two-fifths credit.* Mr. BOYNTON.

Elective for engineering students.

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APPLIED MECHANICS

PROFESSOR MAURER, ASSISTANT PROFESSOR BURNSIDE, ASSISTANT PROFESSOR MOORE, MR. M'CULLOUGH, AND MR. WITHEY

1. Statics. Treated, as are all the following courses, with special reference to the requirements of engineers. Resolution and composition of forces; center of gravity; principles of equilibrium with numerous applications. Graphic as well as algebraic methods are used. *First ten weeks of the second semester; M., Tu., W., Th., F., at* 10 *or* 11; *three hours credit.*
2. Mechanics of Materials. Simple tension, compression and shear; riveted joints; moment and shear diagrams; moment of inertia of plane figures; strength and stiffness of beams, columns and shafts; combined stress and resilience. *Last eight weeks of the second semester; M., Tu., W., Th., F., at* 10 *or* 11; *two hours credit. First nine weeks of the first semester; M., Tu., W., Th., F., at* 10 *or* 11, *and S., at* 8; *three hours credit.*
3. Dynamics. Relates principally to rigid bodies; laws of motion; translation; moment of inertia and rotation; combined translation and rotation; work and energy; impulse and momentum. *Last nine weeks of the first semester; M., Tu., W., Th., F., at* 10 *or* 11, *and S., at* 8; *three hours credit.*
4. Materials of Construction. Principally laboratory work; assigned readings and reports; also the preparation and manufacture of materials. *First and second semester. One or two hours credit.*
5. Advanced Mechanics of Materials. Inertia circle and ellipse; kern; beams of unsymmetrical section; curved beams; principle of least work; whirling shafts; revolving disks; flat plates; thick cylinders, etc. *Second semester; two hours a week.* Professor MAURER.

   Elective for students who have had course 2 or its equivalent.
6. Elements of Mechanics. A general course with emphasis on topics of special interest to the class. Algebra and trigonometry are prerequisites. *First semester; two hours a week.* Professor MAURER.

   Elective for students in the College of Letters and Science.
7. Advanced Technical Mechanics. A review and extension of

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the principles and equations of Dynamics as presented in course 3 with applications especially to harmonic motion, vibrations of machines, and balancing. *First semester; two hours a week.* Professor MAURER.

Elective for students who have had courses 1 and 3 or their equivalent.

8. Materials of Construction. Laboratory research under direction of instructors. *Either semester.*

TOPOGRAPHIC AND GEODETIC ENGINEERING

ASSOCIATE PROFESSOR SMITH AND MR. OWEN

1. Topographic Drawing and Mapping. This work includes work in pen and water color topography. *Throughout the year; 64 hours in draughting room. One-fifth credit each semester.*
2. Elementary Surveying. Johnson's *Surveying* and Smith's *Field Manual. Throughout the year; first half of first semester and last half of second semester; one-fifth credit.*
3. Elementary Surveying. A continuation of course 2, and includes the field and office work of a variety of practical problems in the use of the engineer's transit and level. Special emphasis is placed on methods of computation and arrangement of data. *First semester; recitations two hours a week; field work first nine weeks, 72 hours; four-fifths credit.*
4. Advanced Surveying. A continuation of course 3, and includes a study of the higher instruments of precision, and their use in topographic and hydrographic surveys. *Second semester; recitations two hours a week, first twelve weeks; field work, 56 hours, last eight weeks; three-fifths credit.*
5. Elementary Geodesy. Text: Johnson's *Surveying. Second semester; two-fifths credit.*
6. Trigonometrical Survey. Field work for illustrating course 5. Each year a portion of the region in the vicinity of Portage, Wisconsin, will be covered by an accurate triangulation, and also by a topographic and hydrographic survey. Survey begins the Monday of Commencement week, and continues for four weeks (240 hours). Professor SMITH, Mr. OWEN, and Mr. WILLIAMS.
7. Advanced Geodesy. Lectures, assigned readings, field work.

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Wright's *Adjustment of Observations. First semester; two hours a week.*

Elective for students who have taken courses 2, 3, 4, and 5, or their equivalents.

8. Short Course in Surveying. Planned to meet the demands of Mechanical Engineering and Electrical Engineering students for a general study of the subject including the use of both transit and level. *Second semester; three-fifths credit.*
9. Rapid Topography. Adapted for training topographers for the United States Geological Survey. Use of the plane table and aneroid barometer in sketching topography.
10. Mining Surveying. Field and office work for an underground survey of the University system of tunnels. *Second semester; field work, 60 hours, two-fifths credit.*
11. City Surveying, Topographic and Cadastal. Lectures, assigned readings and field work. *Two hours a week.*

RAILWAY ENGINEERING

PROFESSOR TAYLOR AND MR. WILLIAMS

1. Railway Construction. The theory of field and office work necessary to survey and construct a new railway line and to improve or reconstruct an old one. *First semester; twice a week.* Lectures. Professor TAYLOR.
2. Practice in Field and Office Work. In connection with course 1. 108 *hours field and office work; three-fifths credit.* Mr. WILLIAMS.
3. Maintenance of Way, Train Control and Railway Signalling. *Second semester; Tu., Th., at* 11; 32 *hours in class-room.* Professor TAYLOR.
4. Railway Engineering. A short course in the above subjects, especially adapted to city and interurban railways, is offered as an elective to those who have had course 2 in Topographical Engineering. *First semester;* 18 *hours in class-room and* 36 *hours in the field and office.* Professor TAYLOR.
5. Railway Economics. A study of the history of railway development, railway geography, railway operation, and the economics of railway construction and improvement. *First semester;* 36 *hours in class-room.* Professor TAYLOR.
6. Railway Standards. Continuation of course 3. It is intended

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to give the student some degree of familiarity with designing various railway standards. *Twice a week in either semester.* Mr. WILLIAMS.

7. Tunneling and Substructures. The various methods of tunneling, shaft sinking, ordinary and deep foundation work. Cost and methods of handling earth and rock excavation. Quarrying and use and care of explosives. *Twice a week; last half of second semester.* Professor TAYLOR.

9. Economic Study of the organization, construction, traffic and operation of the great American systems. *Second semester; three hours a week.* Professor TAYLOR.

For course in railway transportation, see courses under the head of Political Economy. This course is offered as an elective to seniors and graduates in Civil Engineering.

RIVERS AND CANALS

PROFESSOR TAYLOR

1. River and Harbor Improvement and Canal Construction. *Second semester; twice a week for the first half of the semester.*

ROADS AND PAVEMENTS

ASSOCIATE PROFESSOR SMITH

1. Location and Construction of Highways and City Streets. *First semester; twice a week.*

HYDRAULIC AND SANITARY ENGINEERING

PROFESSOR MEAD, MR. DAVIS, AND MR. EWALD

1. Hydraulics. Hydrostatics and the flow of water over weirs, and through orifices, pipes and open channels. *One semester; two hours a week.* Mr. DAVIS.

2. Hydraulic Laboratory. Elementary course. 36 *hours in laboratory.* Professor MEAD, Mr. DAVIS, and Mr. EWALD.

3. Hydraulic Laboratory. Advanced experimental and thesis work. Professor MEAD.

4. Water Power. Stream flow, hydraulic power development and test of motors and appliances. *First semester; three times a week.* Professor MEAD.

5. Hydraulic Machinery. Water wheels, motors, pumps and

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other machines. *Second semester; twice a week.* Professor MEAD.

10. Hydrology. Physiography, hydrogeology, and hydrography in relation to water power, water supply and sanitary works. *Second semester; twice a week.* Professor MEAD.
11. Water Supply Engineering. *First semester; three times a week.* Professor MEAD.
12. Sewerage, Drainage, and Irrigation. *Second semester; twice a week, or three times a week for those who desire special instruction in any of these subjects.* Professor MEAD.
13. Hydraulic Design. Design of various features of hydraulic and sanitary works. *One or both semesters; four hours draughting a week.* Professor MEAD.

STRUCTURAL ENGINEERING

PROFESSOR TURNEAURE, ASSISTANT PROFESSOR BURNSIDE, MR. WILLIAMS, AND MR. KINNE

1. Structural Details. The designing of simple forms of members and of joints in wood and iron, and of wooden roof and bridge trusses. *First semester; draughting four hours a week.* Mr. KINNE.
2. Masonry Construction. Theory governing the design of masonry structures and foundations. *Second semester; two hours a week in class-room.* Mr. WILLIAMS.
3. Engineering Architecture. Treats of those principles of artistic design applicable to engineering structures, especially those of masonry. *Second semester; four lectures in connection with course* 4. Mr. WILLIAMS.

4a. Masonry Arches. A discussion of the theory of the stability of masonry arches followed by the complete design of an arch with specification and estimates of cost. *Second semester; two-fifths study.* Mr. WILLIAMS.

4b. Masonry Dams and Stereotomy. A design for a high masonry dam is made, followed by several problems in stereotomy. *First semester; three-fifths study.* Mr. WILLIAMS.

5a. Bridge Stresses. Simple bridge trusses. *Second semester; three times a week.* Professor TURNEAURE and Mr. KINNE.

5b. Bridge Stresses. Suspension, swing, cantilever, and arch bridges. *First semester; twice a week.* Professor TURNEAURE.

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6. Bridge Design. Theoretical considerations. *First semester; once a week.* Professor TURNEAURE.
7. Design and Estimates. In this course each student makes a complete design of one structure of each class mentioned below, prepares detail drawings, and makes an estimate of the quantity of material and cost; complete working drawings are made of at least one structure.

7a. Roof Trusses, and Plate Girders. *Second semester;* 108 *hours in draughting room.* Mr. KINNE.

7b. Riveted and Pin-Connected Trusses. *First semester; with course* 6 *makes a four-hour study.* Mr. KINNE.

7c. Swing Bridges. Design of truss, turntable, and operating machinery. *Second semester;* 72 *hours in draughting room.* Professor TURNEAURE.

Elective for seniors and graduates in Civil Engineering.

8. Advanced Theory and Experimental Work. Higher structures, secondary stresses, and tests on bridges under moving loads. *One or two semesters; two hours a week.* Professor TURNEAURE.

Open to seniors and graduates.

9. Structural Design. A short general course in the designing of roofs and buildings designed for students in mechanical and electrical engineering. *Second semester; three times a week.* Mr. KINNE.
10. Reinforced Concrete Structures. Theory and design. *Second semester; one hour a week.* Professor TURNEAURE.
11. Building Construction. Elementary course open to all engineering students. *One or both semesters; two hours a week.* Assistant Professor BURNSIDE.

STEAM ENGINEERING

PROFESSOR BULL, ASSISTANT PROFESSOR THORKELSON, MR. HUELS, AND MR. SHEALY

1. Thermodynamics. This course covers those principles of the mechanical theory of heat which are preliminary to the study of the various kinds of heat engines. *First semester, first ten weeks; M., Tu., W., Th., F., at* 12; 50 *hours in classroom.* Assistant Professor THORKELSON.
2. Theory of Heat Engines. The study is partly given by lectures; for a large part of the work Peabody's *Thermo-dyna-*

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mics is used. First semester, last eight weeks; M., Tu., W., Th., F., at 12; 40 *hours in class-room.* Assistant Professor THORKELSON.

3. Steam Boilers. The general subject of combustion and its application to steam boilers. H. de B. Parson's *Steam Boilers.* The study is partly taught by lectures. *Second semester, last nine weeks; M., Tu., W., Th., F.* Assistant Professor THORKELSON.

   Open to students who have had either course 1 or course 6.

4. Valve Gears of Steam Engines. Peabody's *Valve Gears for Steam Engines. Second semester, first nine weeks; M., Tu., W., Th., F.* Assistant Professor THORKELSON.

5. Design of the Steam Engine. Taught by lectures, supplemented by the work in the draughting room, where each student is required to work out a complete problem. *First and second semesters; class work two hours a week, draughting six hours a week.* Professor BULL and Assistant Professor THORKELSON.

6. Short Course in Thermodynamics, the Steam Engine, and the Steam Boiler. *First and second semesters; twice a week.* Mr. HUELS and Mr. SHEALY.

7. Course in Steam Engineering for Civil Engineers. *First semester; first twelve weeks; three times a week.* Mr. HUELS and Mr. SHEALY.

   Required of juniors in Civil Engineering, and of seniors in Sanitary Engineering and Applied Electrochemistry.

8. Heating and Ventilation. *First semester; three times a week.* Professor BULL.

9. Gas and Gasoline Engines. Treated both from a theoretical and experimental point of view. *Three times a week throughout the year. First semester,* 18 *hours in class-room,* 72 *hours in draughting room. Second semester,* 54 *hours in class-room.* Professor BULL.

10. Advanced Course in Steam Engineering. Lectures and assigned readings. *First and second semesters; M., W., F., at hours to be arranged.* Professor BULL.

    Open to graduate students and to those who have completed courses 1, 2, 3, 4, and 5 in Steam Engineering.

11. Compressed Air and Its Application. *Second semester; two hours a week.* Assistant Professor THORKELSON.

    Open to students who have had a course in thermodynamics.

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12. Steam Turbines. Lectures on theory and design. *Throughout the year; twice a week.* Professor BULL.
Open to students who have had a course in thermodynamics.

MECHANICAL LABORATORY

PROFESSOR RICHTER, MR. HUELS, MR. ATWOOD, AND MR. SHEALY

1. Calibration of Instruments, and the determination of efficiencies of simple machines. *Second semester; three hours a week.*
Required of juniors in Mechanical and Electrical Engineering.
2. Determination of the Efficiencies and Losses occurring in the steam boiler, and steam, gas, and gasoline engines, and air compressors. Determination of power plant losses and efficiencies. *First semester; three hours a week.*
Required of seniors in Mechanical and Electrical Engineering.
3. Abridged Course. Arranged for Civil Engineering students. *Three hours a week during the last twelve weeks of the first semester.*
Required of juniors in Civil Engineering and seniors in Sanitary Engineering. *Four hours a week.*
Required of juniors in the Electro-Chemical course.
4. Superheated Steam, Gas and Producer gas engines. Efficiencies and construction of refrigerating plants. Fuel and gas analysis. *Second semester; two hours a week.*
Required of seniors in Mechanical Engineering.
5. Transmission of Power. Determination of losses in belt and similar transmission. Screw and gear friction, oil testing, etc., illustrating problems in the design of machinery. *First semester; two hours a week.*
Required of juniors in Mechanical Engineering.
6. Calibration of Instruments. Determination of efficiencies and losses occurring in heat engines and their auxiliaries. Power station losses and efficiencies. The above is followed by work along the line the student wishes to follow. Gas Engineering students will pay particular attention to the prime movers involved in or using a product of gas manufacture. *First semester; five hours a week. Second semester; three hours a week.*

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Required of juniors and seniors in Chemical Engineering.

7. Determination of the constituents of air in rooms and buildings. This course must be accompanied by course 8 in Steam Engineering. *First semester; two hours a week.*
8. Advanced Laboratory Work. Advanced courses will be offered in any of the different lines of experimental work, to conform with the special line of work the student wishes to follow. Stress will be laid on original research and investigation. *Tu., Th., at hours to be arranged.*

Open to graduate students and to those who have completed the required courses in the line they wish to follow.

MACHINE DESIGN

PROFESSOR MACK, MR. VOSSKUEHLER, AND MR. KEOWN

1. Kinematics of Mechanism. The relative motions of machine parts, including belting, toothed gears, cams, chains, ratchets and linkages. *Repeated each semester; one lecture, one recitation and four hours draughting a week.* Prerequisite Mechanical Drawing 1 and 2. Mr. KEOWN and Mr. VOSSKUEHLER.
2. Machine Design. A study of mathematical and empirical methods for the design of machine parts and complete machines, with a parallel draughting course conforming to the requirements of modern draughting practice. This course is a condensation of courses 3 and 4, arranged for the electrical engineering students. Prerequisite, Machine Design 1, Mechanics 1, 2. *Throughout the year. First semester; one lecture, one recitation and three hours draughting a week. Second semester; lecture period omitted.* Mr. VOSSKUEHLER and Mr. KEOWN.
3. Elementary Machine Design. A continuation of mechanical drawing and Kinematics as applied to the making of shop drawings. Problems in the determination of sizes and proportions involving empirical and elementary mathematical methods. A study of the application of the principles of mechanics to the design of machine elements and complete machines. Prerequisite, Machine Design 1, Mechanics 1 and 2. *Throughout the year; one lecture, one recitation, and eight hours draughting a week.* Professor MACK, Mr. VOSSKUEHLER, and Mr. KEOWN.

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4. Machine Design for Chemical Engineering. A study of and practice in the design of pumping, filtration, sugar, oil, and other machinery used in the chemical engineering industries. Prerequisite, three-fifths from Machine Design, and first semester of Machine Design 2. *Second semester; one lecture and three hours draughting a week.* Mr. VOSSKUEHLER.
5. Machine Design. Continuation of course 3, and the design of complete machines of different types, including punching machinery, machine tools, special and automatic machinery. A study is made of manufacturing economics and the influence of various methods of construction, shop facilities, special tools and processes, methods of remuneration of labor, etc., on costs. *Throughout the year; two hours class work and six hours draughting a week.* Professor MACK.
6. Patent Office Drawing. A course giving practice in the preparation of drawings required by the U. S. Patent Office. *One-fifth credit. Time arranged upon consultation.* Professor MACK.

   Open to all who have had course 1 in Mechanical Drawing.
7. Special and Automatic Machinery. *Four hours draughting a week.* Mr. KEOWN.

   Students in Civil, Sanitary, or General Engineering electing special work in Machine Design, should have the same prerequisites as noted in course 5.

APPLIED ELECTROMAGNETISM AND THE CONSTRUCTION OF DYNAMOS

ASSOCIATE PROFESSOR BEEBE, ASSISTANT PROFESSOR SHUSTER, MR. WATSON, MR. ELLIOTT, MR. POST, AND MR. PETURA

1. Electromagnets and Dynamos. A discussion of the simple forms of electromagnets; the development of the laws of magnetization by electric currents; the laws of simple magnetic circuits and the windings of electromagnets; the practical design, construction, management, and testing of dynamos. *Throughout the year; M., W., F., at* 8, 11, 12. Mr. WATSON.
2. Testing Direct-Current Dynamos. Laboratory work with generators, motors, and accessory apparatus. For under-

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graduates. *Throughout the year.* Assistant Professor SHUSTER, Mr. ELLIOTT, Mr. POST, and Mr. PETURA.

3. Electrical Machinery and Appliances. A short course in the theory, construction, management, and testing of direct-current generators, motors, and sundry appliances. *First semester; M., W., F., at* 9. Associate Professor BEEBE.
4. Design and Construction of Large Direct-Current Dynamos. By seminary method. This course includes the working out of complete designs. *Throughout the year; either a three or five-hour course.* Mr. WATSON.

   Open to graduates and others who have had the equivalent of courses 1 (or 3) and 2.

ALTERNATING CURRENTS AND ALTERNATING-CURRENT MACHINERY

PROFESSOR JACKSON, ASSOCIATE PROFESSOR BEEBE, ASSISTANT PROFESSOR SHUSTER, AND MR. ELLIOTT

1. Theory and Application of Single-Phase Alternating Currents. The theory of the generation and utilization of alternating electric currents; the design, construction, and operation of single-phase alternating-current dynamos and transformers; and methods for testing alternating-current machinery. *Throughout the year.* Professor JACKSON and Associate Professor BEEBE.

   For seniors and graduates.
2. Testing Alternating-Current Machinery and Appliances. The testing and operation in the laboratory of single-phase alternating-current generators, motors, transformers, meters, and other appliances. *Throughout the year.* Assistant Professor SHUSTER and Mr. ELLIOTT.

   For seniors and graduates.
3. Elementary Polyphase Currents. Following the treatment in Jackson's *Alternating Currents and Alternating-Current Machinery. Second semester; twice a week. Professor* JACKSON.

   Open to students who have had the equivalent of courses 1 and 2.
4. Testing Polyphase Machinery and Appliances in the Laboratory. *Second semester; once a week.* Assistant Professor SHUSTER and Mr. ELLIOTT.

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Open to students who are pursuing or have completed course 3.

6. Advanced Course in Alternating Currents (including Polyphase Currents and Machinery). Lectures treating in detail the properties of alternating-current circuits and machinery including the effects of resonance, protecting the circuits from lightning, etc. The methods of vector algebra are demonstrated and used throughout the course. *Throughout the year; Tu., and Th., from* 10 *to* 11:30. Two hours of laboratory work may be elected in addition. Professor JACKSON and Assistant Professor SHUSTER.

Open to graduates and others with requisite preparation.

7. Elementary Applied Alternating Currents. A short course in the theory, construction, management, and testing of alternating-current machinery and appliances. *Second semester; M., W., F.* Associate Professor BEEBE.

Open to all who have completed the equivalent of one semester of Applied Electromagnetism 3.

ELECTRICAL INSTALLATIONS

PROFESSOR JACKSON, ASSOCIATE PROFESSOR BEEBE, ASSISTANT PROFESSOR SHAAD, MR. WATSON, AND MR. POTTER

2. Telephones and Telegraphs. The construction, testing, maintenance, and operation of lines and appliances used in telephony, telegraphy, and electric signalling. For undergraduates. *Second semester; three times a week.* Assistant Professor SHAAD and Mr. POTTER.

3. Electrical Testing. Laboratory practice in insulation and breakdown tests, location of faults, testing insulators, etc., Study of the phenomena produced by high pressures on electric circuits. *First semester; twice a week.* Assistant Professor SHAAD and Mr. POTTER.

Open to seniors and graduates.

4. Electric Lighting and Transmission of Power. Theory and practice in the construction and operation of lines. The construction of appliances for the transmission and distribution of electric power. *Second semester; three times a week.* Assistant Professor SHAAD.

5. Graduate Conference. A conference or seminary for the detailed study of engineering problems.

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Open to seniors and graduates.

6. Electric Railways. The road-bed, rolling stock, electric circuits, and power plants. Location, construction, and operation. *Second semester; three times a week.* Assistant Professor SHAAD.

Open to seniors and graduates.

7. Electricity in Mining and Quarrying. The practice in mining and quarrying where electrical machinery can be satisfactorily applied. *First semester; once a week.* Professor JACKSON.

Open to seniors and graduates.

8. Central Station. Design, management, and estimates. *First semester, twice a week; second semester, three times a week.* Assistant Professor SHAAD.

Open to seniors and graduates.

9. Inspection Tours. An inspection tour to large industrial centers is made during the Easter recess. Each student is expected to accompany one of these parties during the last two years of his course or otherwise gain the equivalent thereof. The tours comprise visits to Milwaukee, Chicago, Pittsburg, Niagara Falls, and other manufacturing centers, for the purpose of inspecting manufacturing plants and great engineering works under operation or construction.

10. Illumination and Photometry. The distribution and measurement of light and comparison of sources of illumination. Manufacture and use of electric lamps. *First semester; three times a week.* Assistant Professor SHAAD and Mr. POTTER.

Open to seniors and graduates.

11. Elements of Electrical Engineering. A general course particularly designed for students in Civil and Chemical Engineering. *Throughout the year; Tu., Th., at* 9. Associate Professor BEEBE.

Open to juniors and seniors.

APPLIED ELECTROCHEMISTRY AND ELECTROMETALLURGY

PROFESSOR BURGESS, MR. WATTS, AND MR. BROWN

1. Laws, Principles, and Theories Involved in Electrolytic Phenomena, and their application in the electro-deposition

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of metals for plating, electrotyping and refining, and in electrochemical generation and storage of electrical energy. Class-room and laboratory instruction. Must be preceded by courses in chemistry. *First semester; five times a week.* Associate Professor BURGESS and Mr. BROWN.

Required of seniors in Applied Electrochemistry. Open to seniors and graduates.

2. Industrial Applications of Electrochemistry. A study of the various electrochemical and electrothermal products and processes which have become of technical importance. *Second semester; twice a week in class, and two or more times in laboratory.* Associate Professor BURGESS and Mr. BROWN.

Required of seniors in Applied Electrochemistry. Open to all students who have completed course 1.

3. Laboratory Work. Lines of experimental investigation assigned by instructors, together with occasional conferences and written dissertations. *Throughout the year; three or five times a week.* Associate Professor BURGESS and Mr. BROWN.

Elective for students who have completed course 1 and 2 and the course in Theoretical Electrochemistry.

6. Batteries. Testing and operation of primary and storage cells. Open to all juniors and seniors. *Second semester; one recitation and one or more laboratory periods a week.* Mr. BROWN.

CHEMICAL TECHNOLOGY

PROFESSOR BURGESS, ASSISTANT PROFESSOR SHAAD, ASSISTANT PROFESSOR DICKERMAN, AND MR. BROWN

1. Chemical Machinery and Appliances. General operations, such as crushing, grinding, separation by the wet and dry methods, filtration, distillation; problems involving the application of thermodynamic principles to evaporation, drying, and refrigeration; various types of apparatus used for carrying on these processes. *Second semester; three hours a week.* Professor BURGESS.
2. Technical Fuel, Gas, and Oil Analysis. Laboratory instruction in the technical analysis of fuels, illuminating and fuel gases, products of combustion, etc. *First semester; two periods a week.* Assistant Professor DICKERMAN.
3. Technology of Fuels. Lectures relating to the production,

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properties, and uses of solid, liquid and gaseous fuels, and a consideration of refractory materials and furnace construction. *Second semester; two times a week.* Assistant Professor DICKERMAN.

4. Chemical Manufacture. Instruction and laboratory practice in the preparation of chemical products on a scale sufficiently large to involve the use of filtering, evaporating, centrifugal, and other chemical machinery, and to obtain data upon which the design of a plant may be based. The design of a plant for the production of one or more materials, with an analysis of costs is required of each student. *Second semester; five periods a week.* Assistant Professor DICKERMAN.
5. Industrial Chemistry. Class-room work relating to the manufacture of the more important chemical products such as acids, alkalis, cements, fertilizers, glass, paper, etc.; the equipment of plants, and problems connected with the same chemical resistance of materials. *First semester; three periods a week.* Assistant Professor DICKERMAN.
6. Thermal Efficiencies. A study of heat utilization and losses in chemical and metallurgical reactions involving the use of high temperatures. The purpose of this course is to give instruction and practice in the application of thermal data to chemical transformations. *Throughout the year; three times a week.*
7. Illumination and Photometry. A laboratory course in the measurement of the illuminating power of gas and oils. *Second semester; once a week.* Professor SHAAD.
8. Manufacture and Distribution of Gas. A class and laboratory study of the development of the gas industry, the chemistry of gas manufacture, and the apparatus and problems involved in the manufacture, distribution and consumption of gas for fuel, power, and illuminating purposes. *Throughout the year.*

For fifth-year students specializing in Gas Engineering.

ENGINEERING CONTRACTS AND SPECIFICATIONS

PROFESSOR TAYLOR

1. The law of contracts as applied to engineering work, together with the typical forms of specifications governing

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both the commercial and technical features of engineering construction, and of all the related documents pertaining to engineering contracts. *Second semester; three times a week for six weeks.*

SHOP WORK

PROFESSOR KING, MR. LOTTES, MR. KRATSCH, MR. ANDERSON, MR. M'INTOSH, MR. MARX, AND MR. ROWLEY

1. Bench Work in Wood. *First or second semester;* 36 *hours; one-fifth credit.*
   Required of freshmen in Mechanical and Electrical Engineering.
2. Lathe, Pattern, and Foundry Work. 36 *hours; one-fifth credit.*
   Required of freshmen in Mechanical and Electrical Engineering.
3. Bench Work in Iron. Instruction in the use of the chisel, file, and scraper, to produce flat surfaces. *First semester;* 36 *hours; one-fifth credit.*
4. Production of Flat Surfaces and Straight Edges. Training in the use of the chisel, file and scraper on surfaces of large area. *First semester;* 18 *hours.*
5. Machine Work in Iron. *First semester;* 36 *hours; one-fifth credit.*
6. Practice on the Planing and Milling Machines. *Second semester;* 36 *hours; one-fifth credit.*
7. Forge Work. *First semester; one and one-half fifths credit. Second semester; one-fifth credit.*
8. Practice at the Lathe and Milling Machine. *First semester;* 54 *hours; one and one-half fifths credit.*
9. General Shop Practice and Tool Making. *First semester;* 90 *hours; one and one-half fifths credit.*
10. Machine Construction. *Second semester;* 72 *hours; two-fifths credit.*
11. Lectures on the Development of the Locomotive. *Eighteen hours; one-half fifth credit.*
12. Construction and Pattern Work. Practice in pattern work, and fitting together machine parts. *First semester;* 126 *hours; three and one-half fifths credit.*
13. This course is similar to course 10, but to it will be added

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practice in the erection of line shafting and machinery. Lectures on Shop Design, Erection, and Management will be given. *Second semester;* 36 *to* 180 *hours.*

Elective for seniors.

Note.—Students who take the required four weeks vacation shop work in industrial establishments, must obtain an equivalent to that offered at the University, if full credit is to be given therefor.

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THE COLLEGE OF LAW

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
HARRY S. RICHARDS, LL. D., Dean, and Professor of Law.

JAIRUS H. CARPENTER, LL. D., Jackson Professor of Law. (Emeritus.)
BURR W. JONES, A. M., LL. B., Professor of Law.
JOHN M. OLIN, A. M., LL. B., Professor of Law.
ROBERT M. BASHFORD, A. M., LL. B., Professor of Law.
HOWARD L. SMITH, A. B., LL. B., Professor of Law.
EUGENE A. GILMORE, A. B., LL. B., Professor of Law.
H. CLAUDE HORACK, Ph. B., LL. B., Assistant Professor of Law.
E. RAY STEVENS, B. L., LL. B., Lecturer in Law.
EDWIN S. MACK, A. M., LL. B., Professor of Law.

Law Schools

The most noteworthy feature in the progress of legal education in the last twenty-five years is the growth of law schools in numbers and efficiency. To-day there are one hundred and eight law schools in the United States, with fifteen thousand students, as against forty-three law schools with three thousand students in 1880. These figures serve to show the confidence of the bar in the law school as a medium of legal education, since the great majority of those who seek admission to the bar each year are graduates of law schools. Aside from this, it is obvious that systematic instruction by experienced teachers will result not only in more thorough, but a more speedy preparation for the bar, than is possible through the desultory reading in a busy law office. Familiarity with the routine work of a law office is of the highest value to the prospective lawyer, yet the advantages of such a connection are immeasurably increased if the office apprenticeship is preceded by a thorough training in the principles of the law. The law clerk, thus equipped, will be of more service to his employer, and consequently trusted with more important matters, while the significance of points of practice will be more readily grasped.

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If for any reason a student finds it impossible to take the full course of the law school, it is suggested that he take at least the first year of the course before beginning his office apprenticeship.

History

Plans for the organization of the College of Law were formulated in 1857, but owing to lack of funds the actual organization was not effected until 1868. The instructional staff was composed of members of the Dane County bar and the judges of the Supreme Court.

The course of study covered but one year, and no requirements as to admission were exacted. In 1874 candidates for admission were required to pass examinations in the ordinary English branches. In 1881 the course of study was extended to two years, and candidates were required to have a fair English education. In 1894 the course was extended to three years. In 1896 the requirements for admission were made the same as in the College of Letters and Science. At the time of its organization the College occupied rooms in the capitol building.

It now occupies a building especially erected for it in 1893.

Objects of the Course

The College of Law offers a course of study covering a period of three years. It is designed to teach the fundamental principles of the English and American law in a thorough manner, and to fit the student for the active practice of the profession. In addition to the regular law courses, other departments of the University offer work in Comparative Constitutional Law, International Law, and Roman Law, which are open to law students.

Admission

Students applying to the College of Law may be admitted, as are students in other departments, by either of two methods:—

First, on certificates from accredited schools or colleges.

Second, on examination at the University.

Applicants for admission to the College of Law as candidates for a degree must satisfy the general requirements of the University (see p. 62), and in addition, must present credits equivalent to the Freshman year in the College of Letters and Science. Beginning with the year 1907-08, additional credits equivalent to the

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sophomore year in the College of Letters and Science of the University must be presented. The above requirements may be satisfied by work done in any reputable school or college.

Applicants for admission who can satisfy the general entrance requirements will be admitted as special students and entitled to all the privileges of the school in the way of instruction. An opportunity is thus afforded to prepare for the bar examinations in this and other states. In exceptional cases, special students may become candidates for the degree. (See Requirements for Graduation.)

The examinations are conducted at the same time and by the same members of the Faculty as the examination of candidates for admission to the College of Letters and Science.

In addition to the other entrance requirements, all candidates for admission to the College of Law, whether graduates of accredited high schools or not, are required to take the regular entrance examination in English, required for admission to the College of Letters and Science, (see p. 63) except,

(a) Students of the University who have already passed such examination.

(b) Graduates of other approved colleges and universities. But the Faculty may require any student to take additional work in English, if, in their judgment, it is necessary.

Those intending to apply for examination for admission as juniors, or for advanced standing, should notify the Registrar of the University before the beginning of the year, and apply for directions, as examinations cannot be taken later.

Examinations for admission to the Junior class will be held on June 14-15, and September 25-26, 1906, beginning at 9 o'clock.

While students are admitted as above, yet those who are able to satisfy only the minimum requirements for admission will probably find it difficult to do the work required in a satisfactory manner. Such further preparation as may be derived from a college course, or at least the first two years of it, is strongly recommended.

Advanced Standing

MIDDLE YEAR

Candidates complying with the general requirements for admission to the College as above set out, will be admitted to the Middle year on passing satisfactory examinations in the subjects of the

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Junior year. Students who have graduated from the College of Letters and Science, and who while students in that college have elected and successfully completed ten hours a week of law study, will be admitted to the Middle year. To meet the above requirement the student must elect seven hours of work in the subjects of the junior year of the College of Law and three hours in law courses offered in the College of Letters and Science. The courses from which elections can be made in both colleges to be designated by the faculty of the College of Law.

SENIOR YEAR

Candidates complying with the general requirements for admission to the College as above stated will be admitted to the Senior year on passing satisfactory examinations in the subjects of the Junior and at least twenty semester hours of the work of the Middle year, and in addition thereto presenting certificates signed by the executive officer of a law school of good standing having a three years' course, showing at least one year's study as a regularly enrolled student of such school.

Candidates will be given equivalent credit for satisfactory work done in other law schools in good standing having a three years' course, upon presenting properly authenticated certificates of such work.

Time of Examinations

Examinations for advanced standing will be held at the Law Building on Monday, Tuesday, and Wednesday of the opening week of the University year. All persons who intend to take these examinations must notify the Dean of such intention, not later than September 15th, stating the subjects in which an examination is desired. Special examinations will not be given.

Time of Opening

Lectures begin on the opening day of the semester. All students are required to enter at that time. Entrance after that date will be permitted only for good cause shown.

Graduation

The degree of Bachelor of Laws will be conferred upon all candidates of good moral character and of at least twenty-one years of age, who have complied with the following conditions:

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(1) Credit for at least sixty-two term hours (a term hour is the equivalent of one hour a week for a semester).

(2) Residence of at least two years in a law school of good standing, having a three-year course, one year of which must have been in this College. An average standing of not less than eighty-five per cent. will be required of all students, who, by taking examinations for advanced standing, have been admitted to the Middle or Senior year, and who seek to graduate with less than three years' residence at this or some other reputable law school.

(3) Preparation and presentation of a satisfactory thesis of not less than 3,000 words on some legal topic selected by the Faculty.

(4) Special students who have completed sixty-two term hours and who have been in residence for three years may, provided they have displayed unusual ability in their work, by special action of the Faculty, be recommended for a degree.

Admission to the Bar

The statutes of the State provide that any resident graduate of the Law department of the University of Wisconsin shall be admitted to the bar of any court upon the production of his diploma, and may be admitted to the Supreme Court when not in session by an order signed by one of the Justices thereof and filed with the clerk. (R. S. Wis., sec. 2586.)

Under this statute and a rule of the Federal court, it is customary for the members of the graduating class, on motion of a member of the Faculty, to be admitted to the Supreme Court of the State, and to the district and circuit courts of the United States, immediately upon graduation. This entitles them to admission to the bar of any court of record in Wisconsin and all federal courts.

COURSES OF INSTRUCTION

The courses of instruction are arranged to present, as far as possible, the fundamental topics of the law during the Junior year, and the specialized subjects during the Middle and Senior years.

Junior Year

Contracts. Keener's *Cases on Contracts. Three hours a week; both semesters.* Professor RICHARDS.

The design of this course is to develop the general principles

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of the law of contract as preliminary to the study of specialized forms of legal obligations that have their foundation in contract, and which are treated in separate courses. The principles of mutual assent, consideration, the rights and liabilities of third persons, conditional and unconditional contracts, release and discharge of contracts, are fully treated.

Common Law Pleading. Ames' *Cases on Common Law Pleading* (1st ed.). *One hour a week; both semesters.* Professor MACK.

This course will be limited to the essential principles of common law pleading that are of present importance, and consideration will be given to their influence on the codes. The course will cover the common-law classification of actions, the scope of affirmative and negative pleas, and of demurrers, and the general requisites of pleading.

Law of Persons. Browne on *Domestic Relations*, and cases. *One hour a week; both semesters.* Professor JONES.

This course presents the rights and liabilities of persons laboring under legal disabilities due to peculiar conditions, and embraces the special topics: husband and wife, parent and child, guardian and ward, master and servant, infancy, and insanity.

Property I. Tiedeman on *Real Property. One hour a week; both semesters.* Professor OLIN.

The course in real property extends throughout two years. During the first semester this course deals with the nature of real property, tenure and seisin, the ownership of land, including the extent or duration of estates, equitable ownership, and future estates.

During the second semester the subject of future estates is completed, followed by concurrent ownership, estates and interests arising from marriage, rights of enjoyment incident to ownership.

Personal Property. Gray's *Cases. One hour a week; first semester.* Assistant Professor HORACK.

The distinction between real and personal property is indicated. The nature and acquisition of rights in personal property is considered, with particular reference to the topics of wrecks, estrays, statute of limitations, accession, confusion, market overt; also the transfer of rights in personal property by gifts, annuities, possession, judicial process, bailment, pledge, and finding.

Criminal Procedure. Wisconsin statutes. Washburn's *Outlines*

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of Criminal Law. One hour a week; first semester. (Omitted in 1906-07.) Judge STEVENS.

This course deals with the procedure in Criminal Causes with particular reference to Wisconsin practice.

Criminal Law and Procedure. Chaplin's *Cases. Two hours a week; second semester.* Professor SMITH.

This course deals with the fundamental principles of Criminal Law, both at common law and by statute.

Torts. *Cases on Torts. Ames, Vol. I; Smith, Vol. II. Two hours a week; both semesters.* Professor GILMORE.

This course deals with the subjects of trepass, conversion, defamation, malicious prosecution, deceit, malicious injury by influencing the conduct of a third person; with the doctrine of legal cause, contributory and imputed negligence, liability of maker or vendor of chattels, duty of care on the part of the occupier of land or buildings, liability in extra-hazardous occupations, liability for fire or explosives, liability of owner or keeper of animals, joint wrong-doers.

Courts and their Jurisdiction. (No text-book.) *Ten lectures; first semester.* (Optional.)

This course is instituted in recognization of the difficulties that confront the student at the beginning of his study, due to his ignorance of the judicial system. The purpose of this course is to explain the origin, jurisdiction, and relations of the various courts of original and appellate jurisdiction, both at common law and under American constitutions and statutes; the meaning of the term "judicial precedent," the course of appeal, the method of reading and analyzing cases, the preparation of head notes and summaries, the proper use of text-books and digests in tracing out legal principles.

Middle Year

Commercial Paper. *Two hours a week; second semester.* Professor SMITH.

This course covers the general principles governing bills of exchange, promissory notes, etc.

Private Corporations. Smith's *Cases on Private Corporations. Two hours a week; both semesters.* Professor RICHARDS.

This course deals with the general nature of corporations, including the method of creation, rights and liabilities of stockholders, express and implied powers, duties and powers of direc-

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tors, rights of creditors, liability of corporation for *ultra vires* acts, foreign corporations, legislative control, etc.

Evidence I. Jones on *Evidence*, and selected cases. *One hour a week; both semesters.* Professor JONES.

The courses in evidence are continuous and extend through the Middle and Senior years. During the Middle year the following subjects are considered: The nature of evidence; presumption; judicial notice; relevancy; burden of proof, best evidence; admissions; hearsay and opinion evidence.

Property II. Tiedeman on *Real Property*, and selected cases. *One hour; both semesters.* Professor OLIN.

The course continues the subject as concluded in the Junior year, by which it must be preceded, and includes, during the first semester, a consideration of the rights to dispose of land not based on ownership, of powers, convenants running with the lands, restrictions, rents, public rights in land, voluntary transfers *inter vivos*. During the second semester the course covers the transfer of right in land by will, dedication, adverse possession, prescription, accretion, estoppel, escheat, and forfeiture, restrictions on the freedom of transfer; liens including mortgages.

Equity I. Keener's *Cases in Equity*. *Three hours a week; first semester.* Professor SMITH.

The entire course in equity jurisdiction occupies three hours a week for three semesters.

In the first semester will be taught the nature and general outlines and limitations of the jurisdiction, as based upon inadequacy of legal remedy, with something of its history and development, and its application to torts (waste, trepass, nuisance, etc.).

Equity Pleading. Fletcher on *Equity Pleading*. *Two hours a week; first semester.* Professor BASHFORD.

This course deals with the general principles of Equity Pleading and is regarded as essential to the proper understanding of Code Pleading, which course it precedes.

Code Pleading. Selected Cases. *Two hours a week; second semester.* Professor BASHFORD.

The course in code pleading is designed to cover the whole field of pleading under the codes, both in law and equity. The student will be required to draw the papers necessary in the course of framing an issue for trial. The work of the class room is supplemented by the Practice Court throughout the year.

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Trusts. Ames' *Cases on Trusts* (2nd ed.). *Two hours a week; first semester.* Professor MACK.

The course is planned as a fundamental course on equitable rights as distinguished from equitable remedies for legal rights, which are dealt with in the course on Equity Jurisdiction. The first part of the course will be devoted to express and resulting trusts, including their creation, and the rights and obligations of the trustee and the beneficiary to each other and to third persons. Followed by a study of constructive trusts, illustrating fundamental equitable obligations established to furnish relief for breach of trust, fraud and the like.

Agency. Wambaugh's *Cases on Agency. Two hours a week; first semester.* Professor GILMORE.

The nature of the relation of principal and agent, master and servant, the agent's power to subject his principal to liability in tort and contract, the agent's responsibility to third persons, parties to writings, undisclosed principal, the mutual rights and duties of principal and agent, delegation by agent, ratification, termination of the relation.

Public Service Companies. *Three hours a week; second semester.* Professor GILMORE.

This course covers work usually included under the subject of Carriers. It deals with the nature of public calling, its obligations and rights, rights and duties of common carriers, telephone and telegraph companies, light and water companies, inns and warehouses.

Sales. Williston's *Cases on Sales. Two hours a week; first semester.* Assistant Professor HORACK.

The course in sales of personal property follows naturally upon the general course in Contracts. It is a specialized extension of a portion of that course and an investigation of certain consequences that flow from the special class of contracts that result in sales. In connection with it are taken up the subjects of vendor's liens, stoppage in transitu, the statute of frauds, fraudulent conveyances, and the Wisconsin chattel mortgage law.

Damages. Beale's *Cases on Damages. One hour a week; second semester.* Professor RICHARDS.

This course deals with the respective functions of the court and jury in awarding damages, the theory of relief, the rules applied by the courts in regard to compensatory and punitive damages, direct and consequential damages, avoidable consequences,

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mitigation, and a study of special groups of cases in contract and tort where circumstances make the general rules inapplicable.

Insurance. Wambaugh's *Cases on Insurance. Two hours a week; first semester.* Assistant Professor HORACK.

This course includes a study of the nature and kinds of insurable interests; fire, marine, and life insurance; the nature and interpretation of insurance contracts, and the rights and liabilities thereunder.

Partnership. Burdick's *Cases on Partnership. Two hours a week; first semester.* Professor GILMORE.

The nature of a partnership; formation and dissolution; powers of partners. Rights and remedies of creditors; duties and liabilities of partners *inter se;* accounting and distribution.

Equity II. Keener's *Cases on Equity. Three hours a week; second semester.* Professor SMITH.

This course is a continuation of Equity I and deals with the jurisdiction in cases of fraud, misrepresentation, and concealment.

Equity III. Keener's *Cases on Equity. Three hours a week; second semester.* Professor SMITH.

This course is given in alternate years with Equity II and covers the jurisdiction of equity over the specific performance of contracts.

Senior Year

Evidence II. Jones on *Evidence. One hour a week; both semesters.* Professor JONES.

This course is a continuation of Evidence I, by which it must be preceded. The course includes a study of parol evidence, documentary evidence, competency, and the examination of witnesses.

Code Practice. Lectures, statutes, and selected cases. *Two hours a week; both semesters.* Professor BASHFORD.

This course must be preceded by the course in Code Pleading, and deals with the conduct of causes in court after the parties are at issue, and with the remedies for the enforcement of judgments and orders. The work of the class-room is supplemented by the Practice Court throughout the year.

Wills and Probate Law. Cassoday on *Wills*, and selected cases. *One hour a week; both semesters.* Professor OLIN.

This course deals with the laws of descent and distribution, the essentials of wills and the requisites for their due execution, the probate of wills and the adminstration of estates.

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Quasi-Contracts. Keener's *Cases on Quasi-Contracts. Two hours a week; first semester.* Professor SMITH.

Under the head of *quasi* or constructive contracts is embraced all that very large class of obligations which, while not contractual, in fact, are enforced as if they were so, rather than that the plaintiff should fail of any remedy. They constitute largely that great mass of obligations for the enforcement of which the action of *assumpsit* was invented. That they have not been always clearly classified or distinguished by theoretical writers upon the law, and that a more or less variable and inconsistent terminology has sometimes been applied to them, even by the courts, makes it only the more necessary for the systematic student to determine the foundation and extent of the obligation.

Suretyship. Ames' *Cases on Suretyship. Two hours a week; second semester.* Assistant Professor HORACK.

The nature of the contract of suretyship, suretyship in the form of a collateral undertaking and in the form of an independent undertaking, the surety's defenses, surety's right of subrogation, indemnity, contribution, and exoneration.

Admiralty. Ames' *Cases on Admiralty. Two hours a week; first semester.* (Omitted in 1905-06.) Assistant Professor HORACK.

This course deals with the origin, nature and scope of admiralty jurisdiction, rights and liabilities of owners of vessels, bottomry and respondentia, general average, freight, salvage, towage, pilotage, maritime torts.

Constitutional Law. McClain's *Cases on Constitutional Law. Two hours a week; both semesters.* Professor GILMORE.

Nature of the federal constitution and its amendments, relation of the states to the federal government, the departments of government, taxation, regulation of commerce, naturalization, bankruptcy, currency, etc., the powers of the executive, the judiciary and the jurisdiction of federal courts, civil rights and their guarantees, political privileges, protection of contracts and property.

Conflict of Laws. Selected Cases. *Two hours a week; second semester.* Assistant Professor HORACK.

This course covers a comparative study of the theories, rules of law and practice in different jurisdictions, with special reference to the laws of the various states; of jurisdiction *in rem* and *personam;* of rights as distinguished from remedies, and the recognition and enforcement of rights.

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Probate Law. Statutes and Selected Cases. ***Two hours a week; second semester.*** **Professor SMITH.**

Bankruptcy. Williston's ***Cases on Bankruptcy.*** ***Two hours a week; second semester.*** **Professor MACK.**

This course deals with the fundamental principles of bankruptcy and insolvency laws, including a special study of fraudulent conveyances.

Administrative Law. ***One hour a week; second semester.*** **(Omitted in 1905-06.)**

Illinois Practice. Twelve lectures. (Omitted in 1905-06.)

This is an optional course for students intending to practice in Illinois, and is given every two years.

Municipal Corporations. Selected cases. *One hour a week; second semester.* (Omitted in 1905-06.) Professor RICHARDS.

Organization of Corporations. Statutes and cases. *One hour a week; second semester.* (Omitted in 1906-07.) Professor RICHARDS.

This course is designed primarily for students intending to practice in Wisconsin, and deals with the organization of corporations under the Wisconsin statutes.

Required and Elective Courses

Candidates for the degree are required to take all the subjects of the Junior year, except those marked optional, and ten hours of work in the Middle year and eleven hours in the Senior year. The work of the Middle and Senior years is elective. Middle students may elect not less than ten nor more than fourteen hours in courses offered in the Middle year. Middle students who are graduates of the College of Letters and Science, and who have not completed all the courses of the Junio[illegible] will be required to include such om[illegible]urses [illegible]ai[illegible]lectives. Senior students may el[illegible]s [illegible]han fifteen hours in courses offe[illegible]es not already taken by them [illegible]is permitted to count more th[illegible]ester towards the total hours [illegible]n all cases are subject th[illegible]

[illegible]e Courses

[illegible]xtend throughout the entire [illegible]w Pleading, one hour, Junior

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year; and Code Pleading and Practice, two hours a week, during the Middle and Senior years, supplemented by four hours a week in the Practice Court. The purpose of the course is to instruct the student in the principles of pleading and practice at common law and under the Codes, by duplicating as far as possible the steps taken by an active practitioner in the preparation and trial of cases at law and in equity throughout the entire field of litigation. The student is required to prepare pleadings in assigned cases, and as counsel in the practice court carry through the various steps in a cause from its inception to the final judgment. Instruction will also be given in the drawing of all forms of legal papers. The Practice Court will be conducted by Professor R. M. Bashford, a veteran professor in the school, and a practitioner of large experience at the bar. Unusual facilities are thus provided to prepare the student for the active practice of the profession.

Law Clubs

The work of the Practice Court is supplemented by the law clubs, voluntary student organizations, in which legal questions are argued and decided.

Elective Studies

Students of the College of Law will be permitted to pursue studies in other departments of the University, subject to the following regulations:

Students of the Junior class of the College of Law may elect studies in the College of Letters and Science and substitute them for studies in the Junior year of the law course, to an amount not exceeding three hours a week for that year. The studies to be elected are to be designated by the College of Law.

Seniors in the College of Letters and Science will be permitted to elect, as a part of their undergraduate course, such studies in the College of Law as are specified on page 101.

Resources of the College of Law

The College of Law is maintained from appropriations made for the purpose by the Regents, and from matriculation fees.

By the will of the late Judge Mortimer M. Jackson, funds to the amount of $20,000 were bequeathed to the University to found and maintain a Professorship of Law.

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Law Building

This building was constructed at a cost of $86,000, from brown Superior sandstone. It is amply provided with lecture and library rooms, and is equipped with the most approved systems of lighting, heating, and ventilation.

Library

The library of the College of Law contains 14,000 bound volumes, comprising the official reports of the various states and territories and of the United States; a complete set of English reports; the reporter system; the various series of selected cases, as American Decisions, American Reports, American State Reports, Lawyers Reports Annotated; duplicates of the more important reports; complete sets of the leading law periodicals; a large collection of text books, statutes, digests, etc. Large additions to the library have recently been made by means of a special appropriation from the Board of Regents.

Students are allowed free access to the books. The library is open each week day from 8 A. M. to 10 P. M.

For information concerning the other libraries accessible to students, see p. 39.

Advantages of Location

Unusual facilities for observing the practice of the various courts are offered the students of the College of Law, from the fact that the Supreme court of the state is in session during most of the academic year, and the students have opportunity to listen to arguments by some of the ablest lawyers of the country.

Two terms of the United States District and Circuit courts are held here annually, and important cases, both in law and equity, are tried, illustrating the procedure in the federal courts.

The Circuit court of Dane county holds three terms annually, giving the students opportunity to observe the details of the practice under the code system.

The Municipal court of Dane county sits daily for the trial of criminal causes.

The legislature of the state holds biennial sessions.

The University

The University of Wisconsin has a corps of instructors selected from the best scholars in their respective specialties. On obtain-

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ing the proper certificate from the dean, students of the College of Law may pursue studies for which they are prepared in other departments of the University, without extra charge, in so far as such studies do not interfere with their work in the College of Law. The lectures on political economy, institutional history, and such special topics as the distribution of wealth, socialism, taxation, government of cities, criminology, public finance, and various other topics are of especial importance and value to the student of American law.

Societies

The Forum and the Columbia are incorporated literary societies, composed entirely of law students. Each of them holds weekly meetings for debates and other literary exercises.

Fees and Expenses

All fees are payable in advance at the office of the Secretary of the Regents. (See Tuition and Fees, p. 84.) Admission to membership in the classes is not permitted until the fees are paid. No deductions are made for absences, nor for failure to be begin at the opening of the year, nor is extension of time allowed for payment of fees. Fees must in all cases be paid in advance.

Receipts showing the payment of tuition must be filed with the dean within ten days after entry.

It is most desirable that each student should provide himself with his own text-books and books of selected cases which are designated in the program of instruction. These books may be obtained from the Law Librarian at a considerable discount from the quoted prices. The books required for the first year can be obtained for about $35 and for the second and third years for about $65.

The expenses of living are moderate. (See p. 90.)

Students desiring information in regard to boarding places, or general information as to expenses, should address their inquiries to the Secretary of the Regents.

A careful perusal of this general statement, it is believed, will supply all needed information; but should further inquiries as to admission, examination, etc., be necessary, they should be addressed to the Dean of the College of Law, Madison, Wis.

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THE COLLEGE OF AGRICULTURE

STAFF

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
W. A. HENRY, D. Agr., D. Sc., Dean. Professor of Agriculture.

S. M. BABCOCK, Ph. D., Professor of Agricultural Chemistry.
E. H. FARRINGTON, M. S., Professor of Dairy Husbandry.
H. L. RUSSELL, Ph. D., Professor of Bacteriology.
A. R. WHITSON, B. S., Professor of Soils.
E. P. SANDSTEN, Ph. D., Professor of Horticulture and Economic Entomology.
F. W. WOLL, Ph. D., Associate Professor of Agricultural Chemistry.
R. A. MOORE, Professor of Agronomy.
G. C. HUMPHREY, B. S., Assistant Professor of Animal Husbandry.
*G. N. KNAPP, B. S., Assistant Professor of Agricultural Engineering.
A. S. ALEXANDER, M. D. C., V. S., Professor of Veterinary Science.
D. H. OTIS, M. S., Assistant to the Dean. Assistant Professor of Animal Nutrition.
E. G. HASTINGS, M. S., Assistant Professor in Bacteriology.
H. C. TAYLOR, Ph. D., Assistant Professor in Agricultural Economics.
GEORGE MCKERROW, Superintendent of Farmers' Institutes.
G. H. BENKENDORF, Instructor in Dairy Husbandry.
C. W. STODDART, A. M., Instructor in Soil Chemistry.
J. C. BROWN, M. S., Instructor in Agricultural Chemistry.
G. A. OLSON, B. S., Instructor in Agricultural Chemistry.
W. S. BROWN, A. B., B. S. A., Instructor in Horticulture.
J. G. MOORE, M. S., Instructor in Horticulture.
J. G. FULLER, B. S., Instructor in Animal Husbandry.
E. R. JONES, B. S. A., Assistant in Soils and Drainage.
CHARLES A. OCOCK, B. S., Instructor in Agricultural Engineering.
A. L. STONE, Instructor in Agronomy.
FRANK KLEINHEINZ, Instructor in Animal Husbandry.

*On leave of absence.

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JAMES HUTTON, Assistant in Animal Husbandry.
C. J. MCCOMB, Assistant in Animal Husbandry.
S. A. EASTMAN, Assistant in Animal Husbandry.
H. SANDELL, Assistant in Soils.
MARTIN H. MEYER, Instructor in Creamery.
H. J. NOYES, Assistant in Cheese Making.
A. C. HABERSTICH, Assistant in Dairy Machinery.
ARTHUR W. LAABS, Assistant in Cheese Making.
FRANCIS SCHWINGLE, Assistant in Cheese Making.
C. A. ALTWEGG, Assistant in Pasteurizing.
CLARENCE I. BRAGG, Assistant in Farm Dairying.
GOTTLIEB MARTY, Assistant in Foreign Cheese Making.
ROBERT J. WILLIS, Assistant in Creamery.
CLAUDE E. PHILLIPS, Assistant in Creamery.
LESTER STORY, Assistant in Farm Dairying.
L. H. ADAMS, Farm Superintendent.
IDA HERFURTH, Executive Clerk.
SOPHIE M. BRIGGS, B. L., Librarian.

General Information

The College of Agriculture, while distinct from the other grand divisions of the University in its buildings, its corps of instructors and investigators, and its equipment, is nevertheless intimately interwoven with the whole institution, gaining immensely by such association and union. Agricultural students have all the advantages incident to a great university, such as instruction and counsel from the corps of professors in other colleges, the general libraries, laboratories, societies and associations, while in their specific college they find every factor available to its limit for special advancement along chosen lines.

Four buildings located at the west end of Observatory Hill are devoted to agricultural research and instruction. Agricultural Hall is a four-story structure, 200 feet in length by 64 feet in width, built of Bedford limestone and buff pressed brick, with a red Spanish tile roof. Here are located the executive offices of the College and Experiment Station, the offices of the Farmers' Institute, and the offices and laboratories of the departments of Agricultural Chemistry, Animal Husbandry, Agricultural Bacteriology, and Agronomy, with additional rooms for departments yet to be established. In the rear of the main structure is an octagon wing, 66 feet in diameter, two stories in height. The first story of the

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octagon is occupied by the agricultural library, with its large reading room. In the upper story is located an auditorium, with gallery, having a total seating capacity of 750.

Hiram Smith Hall, devoted to dairy instruction and research, is a brick and stone structure, having a frontage of 103 feet by 48 feet in depth, two and three stories in height. Here are found the offices of the department, lecture rooms, laboratories, rooms for cream separation and cheese making; also rooms for churning and butter working, pasteurization, refrigeration, etc. An addition at the rear furnishes rooms for the manufacture of foreign cheese, cheese pressing, cheese curing, etc. Both buildings are supplied with refrigeration, furnished by an ammonia plant. The Dairy department receives over 4,000,000 pounds of milk annually from more than a hundred different farms; from this are manufactured and sold in Madison, Milwaukee, Chicago, and elsewhere, pasteurized milk, pasteurized cream, print and package butter, and several varieties of cheese.

The joint Horticulture-Physics building is a three-story brick and limestone structure, with a frontage of 76 feet by 60 feet in depth. The east half of the building, devoted to horticulture, is provided in the rear with three green-houses, each 22 by 76 feet in area, back of which is a potting house and general laboratory, 22 by 66 feet, one story in height, over an ample root cellar. The grounds of the Horticultural department embrace about twelve acres, mostly occupied by fruit trees, shrubs, and perennial plants. The seedling experimental apple and plum plantations are especially extensive.

The west half of the building is devoted to instruction and research in soils. At the rear is a green-house, 44 by 76 feet in area. The Soils Department controls twelve acres of the University farm, which area is devoted to irrigation, soil, drainage, and fertilizer experiments. An irrigation plant consisting of engine, pump, and reservoir, supplies water for ten acres of experimental plots. Additional provisions include a reservoir, a distributing system, etc. for cranberry growing at the branch cranberry station, located at Cranmoor, Wood County.

The heating plant for the College of Agriculture, occupying the basement of a brick structure, 35 by 50 feet in area, is provided with five steam boilers aggregating 370 horse power.

About sixty rods west of the group of agricultural buildings above described are located the farm buildings proper. The

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principal ones of these are four large barns for the separate accommodation of horses, cattle, sheep, and swine. Between the two wings of the barn, housing the dairy cows and young stock, is a sky-lighted, steam-heated stock-judging room, 40 by 70 feet in area. A second sky-lighted, stock-judging building, one story in height, 36 by 74 feet, is provided with electric light and steam heat, and can be divided into two rooms by a folding partition.

Provision has been made for the erection of an Agricultural Engineering building, which will be equipped with suitable machinery and appliances for both research and instruction. Instruction will be given to the students, and aid to the farmer, in planning and erecting farm buildings, especially barns and silos, the care and management of farm motors and farm machinery, the laying out of farms, road-building, etc.

The Agricultural College domain comprises two farms, one of which forms a part of the University Campus, and embraces about 150 acres of tillable land. Two miles distant is another farm of 220 acres. Both tracts are devoted to instruction and research, and experiments with farm crops, fertilizers, tillage, drainage, etc., are always in progress. No attempt is made to operate a "model farm," but rather to conduct all operations in such manner as to add to the sum of human knowledge.

Live Stock

The leading breeds of live stock are represented by carefully selected specimens chosen primarily for instruction, but in many cases also used in research work. These animals represent an outlay of over $20,000.

Library

The Agricultural College Library embraces over 7,700 bound volumes and many pamphlets, all distinctly agricultural in character. It is especially strong in its files of scientific agricultural journals, both American and foreign, and herd, stud, and flock books of pure-bred animals. About $1,000 is expended annually for books, periodicals, and binding. A trained librarian is in attendance to assist the student. This library, in combination with the general University library and the State Historical library, gives unusual service to the user of books.

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Societies

Long Course, Short Course, and Dairy students maintain three literary societies which meet weekly. These organizations are for drill in parliamentary practice, training in declamation, debate, and essay writing, as well as for the discussioh of scientific and practical questions along agricultural lines.

Students of the College of Agriculture, former and present, engaged in farming in Wisconsin, maintain an Experiment Association, with a paid membership of over 600, for the purpose of cooperating with the Experiment Station in advancing the agriculture of the commonwealth. Practical experiments, planned by Station officials and a committee of the Association, are carried out on the farms of the members. Especial attention is given to testing promising new varieties of farm grains, and plants secured through the Experiment Station and the United States Department of Agriculture, and to multiplying and disseminating the desirable varieties. By means of this organization, the members of which are scattered all over the State, the College is in close touch with the great body of Wisconsin farmers, numbering 175,000 in all. The State appropriates $1,000 annually to the work, and prints 5,000 copies each year of the annual report of the Association.

Fees and Expenses

For tuition and fees, see Index.

The expenses of resident students in the graduate and long courses are practically the same as for those pursuing other University courses.

The expenses of resident Short Course and Dairy students will vary from $75 to $90 for the term for room, board, washing, and necessary books.

Plan of Agricultural Education

The University system of agricultural education has three aims:

First, to develop agricultural science through investigation and experiment, and to disseminate the same through bulletins and reports.

Second, to give instruction in agriculture at the University.

Third, to disseminate agricultural knowledge among the farmers of the State by means of institutes and popular publications.

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Courses of Instruction

Systematic courses in agriculture have been arranged to meet the wants of students having different purposes in view.

THE GRADUATE COURSE offers to advanced students opportunities for professional training and original investigation, made possible through an active experiment station, associated with numerous scientific laboratories. The special lines of study will be left largely to the selection of the student, subject to the approval of the agricultural faculty. It will be practical for such students to participate in experiments in progress, and, after suitable experience, to conduct independent investigations. When contributions of knowledge of permanent value are made they will be published through the bulletins of the experiment station under the name of the contributor.

THE LONG COURSE offers scientific training in agricultural chemistry, soils, horticulture, animal husbandry, dairying, agricultural bacteriology, agronomy, and agricultural engineering. Besides the strictly professional branches, it embraces general training in chemistry, physics, biology, bacteriology, and other branches which have an application in agriculture. The field is so broad, however, that it is impossible for the student in four years to pursue all the courses offered in addition to acquiring the necessary fundamental studies, and hence a large liberty of selection is allowed.

THE SHORT COURSE is provided for those who can devote only a limited time to study, and who wish to return at once to the active operations of the farm, and therefore desire the greatest amount of directly useful knowledge that can be acquired in the brief time allowed.

THE DAIRY COURSE is designed for those who intend to operate creameries and cheese factories.

THE FARMERS' COURSE, covering the brief period of two weeks in winter, is designed for busy farmers, and follows only lines of intensely practical instruction.

Terms of Admission

GRADUATE COURSES IN AGRICULTURE. Graduates of this University and of other colleges and universities in good standing are admitted to this course without examination.

LONG COURSE IN AGRICULTURE. The requirements for admis-

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sion to this course are given under Requirements for Admission. (See Index.)

ADULT SPECIAL STUDENTS IN AGRICULTURE. For terms of admission for adult special students, see Index.

SHORT COURSE IN AGRICULTURE. Students in this course must be at least sixteen years of age and have a good common school education. No entrance examinations are required, but those who come poorly prepared can not expect to receive the full benefits of the course.

DAIRY COURSES. The requirements for admission to the winter course are the same as for the Short Course excepting that the candidates must have had not less than six months experience in a creamery or cheese factory before entering the course. For admission to the summer course no previous experience is required.

FARMERS' COURSE. No examinations are required for admission to this course, but the candidate must be at least twenty-five years of age.

Degrees

The degree of Bachelor of Science (Agricultural Course) is conferred upon students who successfully complete the long course in agriculture. The degree of Master of Science is conferred upon agricultural graduates who complete one year of advanced study at the University and present an acceptable thesis on a topic approved by the College Faculty.

OUTLINE OF THE LONG COURSE IN AGRICULTURE

All studies in the freshman and sophomore year, except Soils, are given in the College of Letters and Science.

Freshman Year

FIRST SEMESTER

	Hours per Week.
Chemistry 1	5
German 2S	4
Mathematics 2	3
English 1	3
Military Drill	2
Gymnastics	2

SECOND SEMESTER

Chemistry 1	5

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	Hours per Week.
German 2S	4
Soils	3
English 1	3
Military Drill	2
Gymnastics	2

Sophomore Year

FIRST SEMESTER

German 3S	2
Biology 1	5
Physics 1	5
Chemistry 10	4
Military Drill	2
Gymnastics	2

SECOND SEMESTER

German 3S	2
Biology 1	5
Physics 1	5
Botany 6 (See Index, under Botany)	5
Military Drill	2
Gymnastics	2

Junior Year

FIRST SEMESTER

Agricultural Chemistry 1 and 2	5
Soils 2	5
Bacteriology 1	5

Elective: Animal Husbandry, Dairy Husbandry, or Horticulture.

SECOND SEMESTER

Electives

Agricultural Chemistry	5
Soils	5
Agricultural Bacteriology 16 or 17	5
Horticulture	5
Animal Husbandry	5
Dairy Husbandry	5

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	Hours per Week.
Agronomy	3
Farm Engineering	5
Agricultural Economics	2

From the above electives the student will choose a major, to begin with the second semester of the junior year and continue through the senior year—fifteen hours in all. The professor in whose department the major is taken will select a minor to the amount of ten hours. The student will elect not less than ten additional hours in the College of Agriculture, the minimum graduation requirements during the last three semesters being forty-five unit hours.

Senior Year

Continuation of elective course and preparation of thesis.
The total requirements for graduation are 120 unit hours.

DEPARTMENTS OF INSTRUCTION

THE LONG COURSE IN AGRICULTURE

AGRICULTURAL CHEMISTRY

PROFESSOR BABCOCK, ASSOCIATE PROFESSOR WOLL, AND MR. BROWN

The courses in Agricultural Chemistry are open to students who have completed course 1 in general chemistry, and have had at least one semester's work in qualitative and quantitative analysis. Courses 1 to 3 are primarily for undergraduate students, while courses 14 to 19 are advanced courses adapted for graduates and for undergraduates who have completed courses 1 and 2, or their equivalents. The courses in Botany 6 and Agronomy 1, are further prerequisites to, or must be taken in conjunction with, course 17. The courses in Physiology 3, and Animal Husbandry 1 and 14, are further prerequisites to, or must be taken in conjunction with course 18. Course 1 in dairying and course 3 given below, are prerequisites to course 19.

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Primarily for Undergraduates

1. Agricultural Chemistry. Lectures *M., W., at* 2. Professor BABCOCK and Mr. BROWN.
2. Agricultural Analysis. Laboratory work *Tu., Th., F., at* 2. Mr. BROWN.
3. The Chemistry of the Dairy. Laboratory practice. *Second semester; Tu., Th., at* 2. Mr. BROWN.

For Undergraduates and Graduates

14. Advanced Agricultural Analysis. Examination of feeds, plants, and animal products. Conferences, assigned reading, and laboratory work. *Five laboratory periods a week.* Professor BABCOCK.
15. Detection of Adulteration of Concentrated Feeding Stuffs. Includes chemical and microscopical examinations. *Second semester; two laboratory periods a week.* Associate Professor WOLL.
16. Sugar Beet Analysis. Laboratory work. *First semester; M., W., at* 2. Associate Professor WOLL.

Primarily for Graduates

17. Plant Nutrition. A study of the influence of various fertilizers upon the development and composition of plants, to include field and pot experiments. *The equivalent of five laboratory periods a week.* Professor BABCOCK.
18. Animal Nutrition. Digestibility of foods and their influence upon growth, production of milk, etc. Conferences, assigned reading, with laboratory and barn work. *Five periods a week.* Associate Professor WOLL.
19. Advanced Dairy Chemistry. The proximate analysis of milk and its products, and a study of the changes which occur in the manufacture of dairy products. Conferences and laboratory work. *Throughout the year; five periods a week.* Professor BABCOCK.

SOILS

PROFESSOR WHITSON, MR. STODDART, AND MR. JONES

As prerequisites to the courses in soils a year's work in botany, physics, and general chemistry, and one semester's work in analytical chemistry are required. Courses 1, 2, 3, and 14 give a broad

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foundation for agricultural practice, so far as this relates to soil management. Courses 15 and 16 are planned for those who desire to take their theses in soils, or to prepare for investigational work.

Primarily for Undergraduates

1. Drainage and Irrigation. A course in the use of the level and plane table, with special reference to drainage, irrigation, platting farms, etc. Required of all freshmen. *Second semester; three times a week.* Mr. JONES.
2. Soils. A general discussion of the origin and classification of soils, and of the influence of their physical, chemical, and biological conditions upon the growth of crops. Required of all juniors. *First semester; five times a week.* Professor WHITSON.
3. Soils. A study of soils principally in the laboratory with regard to their origin, fertility and physical properties, being a continuation of course 2 which is prerequisite. *Second semester; one lecture and four laboratory periods a week.* Mr. STODDART and Mr. JONES.

For Undergraduates and Graduates

14. Agricultural Climatology. A study of the distribution of heat, light, and precipitation, and of their effects on the staple crops. *Second semester; Tu., Th., at* 9. Professor WHITSON.
15. Soil Physics. This course is principally laboratory work on the mechanical analysis and temperature of soils, and on the movements of the soil moisture. *First semester; five times a week.* Professor WHITSON and Mr. JONES.
16. Soil Chemistry. Principally a laboratory course on the methods of chemical analysis adapted to the study of soil fertility. Courses 2 and 3, and analytical chemistry, both qualitative and quantitative, courses 2 and 3 are prerequisite. *Second semester; one lecture and four laboratory periods a week.* Mr. STODDART.

Primarily for Graduates

17. The Origin and Classification of Soils. The processes of soil formation are studied with special reference to the factors which determine their tilth and fertility. Conferences,

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field, and laboratory work. *Hours and credit to be arranged.* Professor WHITSON.

ANIMAL HUSBANDRY

PROFESSOR HENRY, ASSISTANT PROFESSOR HUMPHREY, PROFESSOR ALEXANDER, ASSISTANT PROFESSOR OTIS, MR. FULLER, MR. KLEINHEINZ, MR. HUTTON, MR. M'COMB, AND MR. EASTMAN

Course 1 is a prerequisite to course 15. Course 16 should be preceded by at least one semester's work in agricultural chemistry, course 1, and by courses 1 and 4. Courses 1, 4, and 4A, together with a reading knowledge of German, are a prerequisite to courses 17 and 18.

Primarily for Undergraduates

1. Breeds of Live Stock. A study of the origin and classification of the various breeds of live stock, and of their principal characteristics. Lectures with practical applications. *First semester; Tu., W., Th.* Prof. HUMPHREY and Mr. FULLER.
2. Breeding and Management. The principles and methods relating to the breeding and management of the livestock as set forth in standard treatises upon this subject. *Second semester; M., Tu., W., Th.* Professor HUMPHREY.
3. Veterinary Anatomy and Physiology. A lecture and text-book course upon rudimentary veterinary anatomy and physiology. *Second semester; Tu., Th.* Professor ALEXANDER.
4. Animal Nutrition. A study of the laws of animal nutrition, the composition of feeding stuffs, the standard rations for the nourishment of farm animals. Lectures and reading. *Second semester; M., Tu., W.* Professor OTIS.

4A. Nutrition Researches. A study of the feeding trials conducted at the principal research stations of Europe and America. The rational feeding, care, and management of farm animals; lectures and seminary work. *Second semester; M., W.* Professor OTIS.

5. Veterinary Physiology and Hygiene. A lecture course upon the physiology and hygiene of domestic animals. *Second semester; Tu., Th.* Professor ALEXANDER.
6. Judging Live Stock. Principles governing the selection and judging of live stock. Text-book, reference work, and prac-

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tical judging. *First semester; M., Tu., Th.* Professor HUMPHREY and Mr. FULLER.

7. Live Stock History. A study of leading individuals and families of live stock, including records and pedigrees. Seminary work. *M., W.* Professor HUMPHREY and Mr. FULLER.

Primarily for Graduates

14. Breeding Problems. The principles and methods as set forth in Darwin's *Animals and Plants under Domestication*, and the standard treatises upon stock breeding. Assigned reading, pedigree work, and conferences. *Second semester; five-fifths credit.* Professor HUMPHREY.
15. Improved Live Stock. An advanced study of the development, characteristics, and usefulness of the more important breeds of live stock. Assigned literature, practical judging, and conferences. *First semester; five-fifths credit.* Professor HUMPHREY.
16. Feeding Problems. The student will assist in some regularly organized effort of the department in its nutrition studies. He will aid in the feeding operations, keeping records, making analyses of feeding stuffs used, and compiling the results of such investigation. *Daily throughout the year, as arranged.* Professor OTIS.
17. Nutrition of Farm Animals. A study of the nutrition researches of farm animals at the leading research stations of Europe and America. Seminary work. *Throughout the year; M., W., F.* Professor HENRY.
18. Researches in Nutrition. Under proper direction, qualified graduates may conduct original researches on the effect of nutritients upon the animal; e. g., growth, milk production, fecundity, development of the muscles, bones, viscera, etc. This work will be combined with animal studies of the nutrients employed and of the bodies and organs of the animals subjected to the experiment. *Daily throughout the year, as arranged.* Professor HENRY.

DAIRY HUSBANDRY

PROFESSOR FARRINGTON, MR. BENKENDORF, MR. MEYER, AND ASSISTANTS

The courses in Dairy Husbandry 1 to 5 are open to students who have had two years' undergraduate training in the scientific

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departments of the University, or their equivalents. Courses 16 to 20 are intended primarily for graduate students. Course 16 is open to students who have finished courses 1 and 3. Courses 17, 18, and 20 are open to students who have taken courses 1, 2 and 5, respectively while courses 1, 2, and 5 are prerequisites to course 20.

Primarily for Undergraduates

1. Creamery Buttermaking. Cream separation, cream ripening, churning, butter working, butter printing, etc. Lectures and factory work. *Throughout the year; five two-hour periods a week, at* 8. Professor FARRINGTON and Mr. MEYER.
2. Cheese Making. Lectures and factory work in making and curing Cheddar, Swiss, brick, Limburger, and Edam cheese. *Throughout the year; five two-hour periods a week, at* 8. Mr. NOYES and Mr. MARTZ.
3. Dairy Machinery. Shop practice with engines, boilers, artificial refrigeration machinery, pipe fitting, etc. *Second semester; Tu., at* 8. Professor FARRINGTON and Mr. BENKENDORF.
4. Milk Inspection. Lectures and laboratory practice. *Second semester; M., at* 8. Professor FARRINGTON and Mr. BENDENDORF.
5. Milk and Cream Pasteurization. *Second semester; W., at* 8. Professor FARRINGTON and assistants.

For Undergraduates and Graduates

16. Cream Separation. An historical study of the various farm and factory methods used for separating cream. Assigned reading with illustrative laboratory practice. *Throughout the year; four periods a week.* Professor FARRINGTON.
17. Milk Inspection and Testing. Methods used at farms, factories, and city supply stations, including inspection of a large number of farm dairies. *Second semester; four or more periods a week.* Professor FARRINGTON.
18. Butter Yield and Quality. A study of the effect due to the various manipulations in the manufacturing processes. *Second semester; four periods a week.* Professor FARRINGTON.

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19. Pasteurization. Its application to butter making, cheese making, and city milk supply. *Second semester; four periods a week.* Professor FARRINGTON.
20. Cheese Making and Curing. A study of the effects produced by varying the usual processes of cheese making. *Hours to be arranged.* Professor FARRINGTON.

HORTICULTURE

PROFESSOR SANDSTEN, MR. BROWN, AND MR. MOORE

Botany 6, department of Botany, is a prerequisite to all courses in this department and course 1 will be required of all pursuing any of the remaining courses. Course 3 is a prerequisite to course 4. Course 7 of the Soils department is a prerequisite to course 6. Students pursuing course 7 will spend at least one summer in the department, having previously pursued courses 1, 2, and 5. Courses 1, 2, and 5 are prerequisites to course 19, with the further requirement that one year's time be given by the student taking this course. Course 5 is a prerequisite to course 20. Courses 1, 2, 3, and 5 are prerequisites to course 21.

Primarily for Undergraduates

1. Plant Propagation. An elementary course covering instruction in the various methods of propagating horticultural plants in the garden and green-house. Lectures and laboratory work. *Second semester; M., Tu., W.* Mr. BROWN.
2. Fruit Growing. This course, in connection with course 1, will cover the general field of fruit growing, with especial reference to conditions in the Northwest. Lectures and recitations. *Second semester; Th., F.* Professor SANDSTEN.
3. Olericulture. This subject will be taught to meet the growing demands for instruction in this important branch of horticulture. Lectures and laboratory work. *Second semester; M., Tu., W.* Mr. BROWN.
4. Growing Vegetables Under Glass. A course in growing vegetables in the greenhouse. *First semester; M., Tu.* Mr. MOORE.
5. Economic Entomology. Lectures and laboratory work. *Second semester; two hours a week.* Professor SANDSTEN.
6. Landscape Gardening. Lectures, field-work, and the map-

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ping of grounds, lawns, etc. *Second semester; two hours a week.* Professor SANDTEN.

7. Commercial Fruit Growing. Lectures, reading, and practice-work in the orchards of the department. *First semester; M., Tu., W.* Professor SANDSTEN.
8. Floriculture. Greenhouse management and plant propagation. *Second semester; W., Th., F.* Mr. MOORE.

Primarily for Graduates

18. Plant Breeding. An experimental course based upon the research work of the department. *Three or more laboratory periods a week.* Mr. MOORE.
19. Plant Propagation. With special reference to nursery practice. Emphasis will be laid upon the most approved methods of propagating fruit and ornamental trees, shrubs, and flowers. Conferences, assigned reading, and laboratory work. *Five laboratory periods a week.* Mr. MOORE.
20. Economic Entomology. With special reference to insects injurious to horticultural and agricultural crops. Facilities are provided for the breeding and for the study of the life histories of insects. The methods of compounding, and the uses of insecticides will be fully considered. *Second semester; M., W., F.* Professor SANDSTEN.
21. Experimental Horticulture. The planning of experiments, keeping records, tabulating work, etc. *Five laboratory periods a week.* Professor SANDSTEN and Mr. BROWN.

BACTERIOLOGY

PROFESSOR RUSSELL, ASSISTANT PROFESSOR FROST, AND ASSISTANT PROFESSOR HASTINGS

It is desirable that students who wish to take course 1 (General Bacteriology) shall have had General Chemistry and Biology. Course 1 is a prerequisite for courses 16 and 17. Course 1 and courses 16 or 17 are prerequisites for thesis work in this department.

For Undergraduates

1. General Bacteriology. Lectures. A survey of the entire field of bacteriology. Given in the College of Letters and Science. Required of junior agricultural students. *First*

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semester; M., W., F., at 11. *Five-fifths credit.* Professor RUSSELL and Assistant Professor FROST.

For Undergraduates and Graduates

16. Dairy Bacteriology. A study of bacteria in relation to dairy processes, including the production of milk, butter and cheese, also action of disease bacteria in milk. Lectures, assigned literature, and laboratory work. *Second semester; five-fifths credit.* Professor RUSSELL and Assistant Professor HASTINGS.
17. Agricultural Bacteriology. Embraces a consideration of bacteria as applied to agricultural processes, including their relation to soils, diseases of plant and animal life, and to dairying. Lectures and laboratory work. *Second semester; five-fifths credit.* Professor RUSSELL and Assistant Professor HASTINGS.

Primarily for Graduates

18. Bacteriology of Special Dairy Problems. Exceptional opportunities are offered for a combination of laboratory work with the practical problems relating to milk production and its manufacture in the dairy. Laboratory work, assigned literature, and conferences. *Three to five-fifths credit.* Professor RUSSELL and Assistant Professor HASTINGS.
19. Bacteriology of Animal Diseases. Special problems on bacterial diseases of animals. Laboratory work, assigned literature, and conferences. *Three to five-fifths credit.* Professor RUSSELL and Assistant Professor HASTINGS.

AGRONOMY

PROFESSOR MOORE AND MR. STONE

As a prerequisite, the student should first complete Biology, course 1, and Vegetable Physiology, course 17, department of Botany. In addition to receiving theoretical instruction, students will assist, so far as practicable, in the various operations of the department, including plant-breeding, testing new varieties of farm cereals and forage plants, cultural methods, etc.

Primarily for Undergraduates

1. Cereals and Forage Plants. A systematic study of plant-

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breeding as now being developed in America, also a study of Indian corn and the other leading cereals grown in Wisconsin. In a minor way the seeding, cultivation, and harvesting of crops will receive attention, as will also the production of the leading forage plants, particularly alfalfa and other promising legumes. *Throughout the year; three times a week.*

Primarily for Graduates

12. Breeding Grains and Forage Plants. A study of the methods pursued by plant breeders supplemented by field work in the propagation of new varieties of grains and forage plants. Lectures and laboratory work. *Three times a week throughout the year.* Professor MOORE and Mr. STONE.

AGRICULTURAL ENGINEERING

MR. OCOCK

Courses 1 and 3 cover many of the general and specific problems that arise in connection with the construction of farm buildings and fences. Courses 2 and 4 give such instruction as will enable the operator to obtain the maximum efficiency and durability with the principal farm machines. It is important that the student bring to the work a fund of actual experience. For courses 2 and 4 the student is urged to previously take shop work, courses 1 and 7 (Mechanical Engineering). In course 5, for architectural work the student must have first completed course 1; for cement work he must have completed course 3; for farm machinery he must have completed course 4.

Primarily for Undergraduates

1. Rural Architecture. The location of farm buildings with reference to the landscape effects, convenience, and sanitation; the construction of the farm house, barns, the silo, etc., heating and ventilation; platting the home grounds, paddocks, yards, and fields. *First semester; Tu., Th.,* 2 *to* 4; *two-fifths credit.*
2. Power Machinery. The construction, efficiency and operation of horse-powers, windmills, gasoline and traction engines; pumps, corn shellers, feed cutters, corn huskers, grinder, etc. *First semester; M., W., F.,* 2 *to* 4; *three-fifths credit.*

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3. Cement Work. Concrete construction as applied to the walls, floors, and posts of stables, also to feeding floors, water tanks, manure pits, fence posts, etc. *Second semester; Tu., Th.,* 2 *to* 4; *two-fifths credit.*

4. Farm Machinery. The tools and machinery of the field:—Plows, harrows, and horse-hoes; seeders, drills, corn and potato planters, transplanters; mowers, rakes, self binders, corn harvesters, potato diggers, etc. Lectures and laboratory practice, including setting up and testing machines. *Second semester; M., W., F.,* 2 *to* 4; *three-fifths credit.*

Primarily for Graduates

5. Special Advanced Work. The student may arrange for continuation of his studies in any of the above courses during the second semester or the summer vacation. *Two-fifths or five-fifths credit.*

AGRICULTURAL ECONOMICS

ASSISTANT PROFESSOR TAYLOR

26. The Elements of Agricultural Economics. This course treats of those economic principles which underlie the prosperity of the farmer and of all other classes in so far as they are dependent upon agriculture. The subject is divided into two parts. Part one considers the subject from the point of view of the farmer, and the discussion centers about those economic principles which underlie the carrying on of agriculture in such a manner as will enable the farmer to realize the largest net profits. In part two, the point of view is that of the nation as a whole, and it is attempted to discover those economic principles which should guide the agrarian statesman in his efforts to conserve and promote the agricultural interests of a country. *First semester; Tu., Th., at* 12. Assistant Professor TAYLOR.

27. Historical and Comparative Agriculture. This course consists of lectures and assigned readings on the agriculture of the Romans, on the development of agriculture in England and in the United States, and on the present status of agriculture in the most important countries, with an attempt to find the cause of historical changes and geographical differences. *Second semester; Tu., Th., at* 12. Assistant Professor TAYLOR.

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THE SHORT COURSE IN AGRICULTURE

This course covers two terms of fourteen weeks each, beginning about the first of December, each year.

FIRST YEAR

Fourteen lectures in feeds and feeding. Assistant Professor OTIS.

Thirty-five lectures in the breeds of live stock with score-card practice additional in stock judging. Mr. FULLER.

Thirty-five lectures in soils. Professor WHITSON.

Thirty-five lectures, with seventy hours' laboratory practice in plant life. Professor SANDSTEN and Mr. BROWN.

Twelve lectures in dairying. Professor BABCOCK.

Seventy-two hours' practice in farm dairying and dairy laboratory. Mr. BRAGG.

A course in farm bookkeeping. Mr. STONE.

Twenty-eight hours of recitation and drill in parliamentary practice. Professor MOORE.

SECOND YEAR

Twenty lectures or equivalent on feeding farm animals. Professor OTIS.

Twenty lectures on breeding and managing live stock with seventy hours' practice in stock judging. Professor HUMPHREY, Professor ALEXANDER, and Mr. FULLER.

Thirty-five hours of lectures and laboratory practice in drainage and meteorology. Professor WHITSON, Mr. JONES, and Mr. SANDELL.

Seventy hours of lectures and laboratory practice in horticulture. Professor SANDSTEN and Mr. BROWN.

Twenty lectures and recitations in elementary agricultural chemistry. Mr. BROWN.

Twenty-five lectures in veterinary science, with demonstrations. Professor ALEXANDER.

One hundred and twelve hours at workbench and forge. Professor KING and assistants.

Seventy hours of lectures and laboratory practice in agronomy. Professor MOORE and Mr. STONE.

Twelve lectures in agricultural economics. Professor TAYLOR.

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Twenty lectures in bacteriology as applied to agricultural conditions. Professor RUSSELL.

Students completing the studies of this course in a satisfactory manner are granted short course certificates.

An illustrated circular describing the Short Course in detail will be sent on application to Professor D. H. OTIS, College of Agriculture, Madison, Wis.

THE WINTER DAIRY COURSE

The course begins about the first of November each year and lasts twelve weeks. It is open to persons who have had at least six months experience in creamery or cheese factory work.

Instruction in this course in dairying is given as follows:

1. Lectures and class-room work.

   Twenty lectures on the constitution of milk, the conditions which affect creaming and churning, methods of milk testing, the preservation of milk, etc. Professor BABCOCK.

   Twenty-four lectures on creamery management and accounts. Professor FARRINGTON.

   Sixteen lectures on practical cheese making. Mr. NOYES.

   Sixteen lectures with demonstrations on the influence of bacteria in the dairy. Professor RUSSELL.

   Sixteen lectures and demonstrations on the care and management of the boiler and engine. Assistant Professor THORKELSON.

   Eight lectures on the feeding and management of dairy stock. Assistant Professor OTIS.

   Eight lectures on breeding and selection of dairy stock. Assistant Professor HUMPHREY.

   Eight exercises in parliamentary practice. Professor MOORE.

2. Milk Testing. This embraces instruction in the laboratory in estimating the fat and other constituents in milk, butter, and cheese by methods adapted to the factory and factory operators. *Fifteen hours a week.* Professor FARRINGTON and assistants.

3. Butter Making. Butter making is carried on daily on the creamery plan. The student learns to operate the modern forms of power centrifugal separators and pasteurizing machines. They attend to the ripening of the cream, churning, and packing butter, carrying on all the operations as

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they would be conducted in a creamery. *Fifteen hours a week.* Professor FARRINGTON and assistants.

4. Cheese Making. In this course daily instruction is given in the manufacture of Cheddar cheese, the operations being carried on as in the regular factory, the students being required to take careful notes and make reports upon the process. Special instruction is also given in the making of Swiss, brick, and Limburger cheese. *Fifteen hours a week.* Mr. NOYES and Mr. MARTY.
5. Dairy Machinery. This course provides instruction in firing and caring for boilers, running engines, putting up shafting, cutting and fitting iron pipe, belt lacing, soldering, etc. *Twenty hours a week.* Professor FARRINGTON and assistants.

THE SUMMER DAIRY COURSE

In the summer course in dairying the student may enter at any time after March 1st. and remain for an indefinite period. No previous preparation is required. The student will assist in all of the different operations of the University creamery, thus gaining much practical experience. Laboratory exercises and theoretical instruction will be given as required.

Examinations and Certificates

To secure a dairy certificate a student must have spent a full term in the Dairy School and successfully passed all examinations; and further, he must have had not less than two seasons' experience in a creamery or cheese factory, one of which must follow the period spent in the Dairy School. During the second season the candidate will report the operations of his factory monthly on blanks and have his work inspected by an authorized agent of the University.

An illustrated circular giving additional information concerning the Short Winter and Summer dairy courses will be sent on application to Professor E. H. Farrington, Madison, Wis.

FARMERS' COURSE

Instruction in the farmers' course includes two lectures daily, for two weeks, by professors and instructors connected with the

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College of Agriculture. The remainder of the day is devoted to instruction in corn judging and the judging of live stock.

An illustrated circular giving details of the course will be sent on application.

THE AGRICULTURAL EXPERIMENT STATION

OFFICERS OF THE EXPERIMENT STATION

CHARLES R. VAN HISE, President of the University.
W. A. HENRY, Director.

S. M. BABCOCK, Assistant Director and Chief Chemist.
F. W. WOLL, Chemist.
H. L. RUSSELL, Bacteriologist.
E. H. FARRINGTON, Dairy Husbandman.
A. R. WHITSON, Soil Physicist.
E. P. SANDSTEN, Horticulturist.
R. A. MOORE, Agronomist.
G. C. HUMPHREY, Animal Husbandman.
A. S. ALEXANDER, Veterinarian, in charge of the Department of Horse Breeding.
D. H. OTIS, Animal Nutrition.
C. W. STODDART, Assistant Physicist.
G. H. BENKENDORF, Assistant Dairy Husbandman.
E. G. HASTINGS, Assistant Bacteriologist.
G. A. OCOCK, Assistant in Agricultural Engineering.
J. C. BROWN, Assistant in Agricultural Chemistry.
G. A. OLSON, Assistant in Agricultural Chemistry.
W. S. BROWN, Assistant in Horticulture.
J. G. FULLER, Assistant in Animal Husbandry.
A. L. STONE, Assistant in Agronomy.
J. G. MOORE, Assistant in Horticulture.
E. R. JONES, Assistant in Soils, Drainage, and Cranberry Investigations.
FRANK KLEINHEINZ, Assistant in Animal Husbandry.
JAMES HUTTON, Assistant in Animal Husbandry.
C. J. MCCOMB, Assistant in Animal Husbandry.
S. A. EASTMAN, Assistant in Animal Husbandry.

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HARVEY SANDELL, Assistant in Soils.
O. G. MALDE, Assistant in Cranberry Investigations.
LESLIE H. ADAMS, Farm Superintendent.
IDA HERFURTH, Executive Clerk.
SOPHIE M. BRIGGS, Librarian.

The purpose of the Experiment Station is the promotion of agricultural science by investigation and experimentation. In the choice of subjects it endeavors to select those which possess the greatest importance to the farmers of Wisconsin, so far as the facilities at hand permit. The endeavor at all times is to give the investigations a fundamental character in order that the results may be real contributions to agricultural science. The station is also a means of disseminating general and miscellaneous information on agricultural topics, and its staff cheerfully devotes the necessary time to private and public correspondence and to personal interviews.

By the direction of the general government, which supplies a portion of the funds for maintaining the Station, there are issued an annual report and frequent bulletins. Twenty-two reports and 134 bulletins have been issued to date. Fifteen thousand copies of the reports are printed annually, and the edition of the bulletins comprises from 5,000 to 25,000 copies. These bulletins and reports are free to all residents of the State upon application. The station mailing list now embraces about 18,000 names of farmers and others to whom the reports and bulletins are regularly sent.

FARMERS' INSTITUTES

INSTITUTE STAFF

GEORGE MCKERROW, Superintendent.
NELLIE E. GRIFFITHS, Clerk and Stenographer.

INSTITUTE CONDUCTORS*

Corps No. 1—W. C. BRADLEY, Hudson.
Corps No. 2—L. E. SCOTT, Neenah.
Corps No. 3—F. H. SCRIBNER, Rosendale.
Corps No. 4—DELBERT UTTER, Caldwell.

*Appointed each year.

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REGULAR ASSISTANTS*

George C. Hill, Rosendale. David Imrie, Roberts.
E. Nordman, Polar. L. P. Martiny, North Freedom.

OTHER ASSISTANTS*

C. P. Goodrich, Fort Atkinson. R. E. Roberts, Corliss.
Thomas Convey, Ridgeway. Mrs. Adda F. Howie, Elm Grove.
A. A. Arnold, Galesville. John L. Herbst, Sparta.
C. E. Matteson, Pewaukee. Miss Adella Sater, Ottawa, Ill.
E. C. Jacobs, Menomonie.

The third division of work of the College of Agriculture is the instruction of farmers who are unable to come to the University for study. This is made possible through generous legislative provisions, by which a carefully supervised system of farmers' institutes is maintained. The institutes are in immediate charge of a superintendent, who elaborates and controls the organization and maintenance of the institutes. He is aided by special conductors who assist in perfecting details and carrying the whole into effect. Members of the agricultural faculty render as much assistance as is consistent with their other duties. Experts in different departments are engaged to present special important themes. Lecturers are often brought from other states to treat on specific topics in which they are recognized authorities. Local talent is used to some extent and not the least of the educational benefits is the development of latent ability in writing, speaking, and experimenting which has followed as a natural result from the interest awakened by this important stimulus.

During the institute season of 1905-06 one three-day, and eighty one-day institutes will be held at as many places in the state. A cooking school will be held in connection with the closing institute.

How to Secure an Institute

Institutes are placed for the most part in localities which show the greatest interest in this movement. Applications for institutes will be received by the superintendent and presented to the agricultural committee not later than Sept. 30. The committee goes over the list and carefully considers the needs and interests of

*Appointed each year.

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each locality, and places the institutes where, in its judgment, they will prove the most helpful. In the past there have been more applications for institutes than it was possible to supply. Applications should be received before Sept. 15 each year.

The Farmers' Institute Bulletin

To disseminate still more widely the best matter presented and discussed at the institutes, and to give such material permanency for its own sake and for its historical value, a bulletin giving a stenographic report of the closing institute of each year is issued. Bulletin No. 19 contains a stenographic report of the closing institute held at Eau Claire in March, 1905. Sixty thousand copies of this bulletin have been issued. Eight thousand cloth bound copies will be placed in the school district libraries of the state; 35,000 will be given to the farmers in attendance at the institutes, and the remainder distributed through cheese factories, creameries, etc. Copies will be sent to all applicants living within the state, upon receipt of 10 cents to pay postage and mailing, if paper covers are desired, and 25 cents for cloth-bound covers. To those outside of Wisconsin, 25 cents for paper-covered and 40 cents for cloth-bound copies will be charged, to cover mailing and cost of publication.

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THE SCHOOL OF MUSIC

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
F. A PARKER, Director, Professor of Music.
ADA BIRD, Piano.
ALICE REGAN, Piano.
INGA SANDBERG, Piano.
WINIFRED CARD CURTIS, Piano.
MARY MAUD FOWLER, Piano.
ADELAIDE FORESMAN, Voice.
ELIAS A. BREDIN, Voice, Organ, and Theory.
GENEVIEVE CHURCH SMITH, Voice.
CHARLES NITSCHKE, Violin, 'Cello, and other Orchestral Instruments.
ELIZABETH KEELEY ANDERSON, Harp.
FRANK CHARLES BACH, Mandolin and Guitar.
MRS. MARTHA E. BRAND, Guitar and Banjo.
HERMAN E. OWEN, Public School Music.
BESSIE BRAND, Secretary.

It is the purpose of the School of Music to furnish superior facilities for the study of music in any or all of its departments, theoretical, or practical. Instruction is offered in piano, organ, harp, singing, orchestral instruments, mandolin, guitar, and banjo, and in musical theory, choral practice, harmony, counterpoint, composition, and methods in public school music. In the study of piano or singing (voice culture) instruction is given by means of private or individual lessons, or, should a sufficient number of students desire it, classes limited to three will be organized. In the study of other instruments, private lessons only are employed. In the theoretical studies students are recommended to join the University classes, but private lessons may be arranged for if preferred.

To meet the convenience of students residing either permanently or temporarily in distant parts of the city, an office and studios are provided in the Kroncke building, in addition to those in Assembly Hall at the University. Applications for les

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sons may be made at either place, the lessons being given where it is found to best suit the convenience of instructor and student.

The lessons vary in length and number a week, for the purpose of adequately meeting the wants of all classes of students, from those who take a large amount of work in other departments of the University to those who devote themselves especially to the study of music with little or no collateral work. In like manner the fees for special instruction vary according to the length and frequency of lessons. A schedule of fees may be found under Fees and Expenses. (See Index.)

It should be observed that special instruction in vocal or instrumental music of any kind may be taken by students not otherwise connected with the University, and that such students are not required to pay the incidental fee.

The general classes in harmony, counterpoint, history of music, musical composition, and general methods in public school music may be taken as electives by students of the College of Letters and Science, who will receive credit for them, as for other studies, freshmen excepted. These classes are likewise open to students of the other colleges and schools of the University without extra fees.

Students of the School of Music not otherwise connected with the University, may be admitted to these classes on the payment of the usual incidental fee charged to students of the College of Letters and Science ($10 per semester). The tuition fee required for students in the University who are not residents of the state is not required in the School of Music.

A statement of courses and classes follows. For a statement of credits, see Index under Music.

COURSES OF THE SCHOOL

There are two general courses in the School of Music, viz.: (1) The collegiate course, and (2) the academic course.

I. The Collegiate Course

In this course the requirements for admission are the same as for the general courses in the College of Letters and Science, or for adult special students, together with such proficiency in some department of music, as is stated in connection with the outlined courses of study. A graduate's diploma will be granted on the

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completion of this course. Four years of study are required, including the courses in musical theory, harmony (one year), and history of music, or their equivalents.

II. The Academic Course

This course is open to persons not members of the University, and also to University students who do not desire to enter the collegiate course pursuant to graduation. Students of this course may, however, be admitted to the musical classes of the University on the payment of the usual incidental fees charged to students of the College of Letters and Science ($10 a semester), but will not be considered candidates for graduation or for a diploma. If, however, at any time, such students should be transferred to the collegiate course, they will, on satisfying other conditions, receive credit for studies previously taken. A certificate of excellence will be granted to worthy students of this course on examination, after not less than three years of study.

THE COURSES OF STUDY

I. COLLEGIATE COURSE

PIANO

The courses in Piano and Singing have been re-arranged to cover a period of four years instead of three. This, however, does not apply to students who entered before September 1904. Such students may refer to the University catalogue for 1903-04.

Applicants for admission will be expected to play music of the grade of Mozart's *Sonata in D major No.* 3, Peters Edition; Loeschorn, *Op.* 52 *and Op.* 66; Bach, *Little Preludes.*

FIRST YEAR

Heller, *Op.* 46 *and* 45; Czerny, *Studies in Velocity;* Jensen, *Op.* 32; Bach, *Inventions and English Suites.*

SECOND YEAR

Bach, *Well-Tempered Clavichord;* Kullak, *Octave School,* Books I and II; Cramer, *Studies;* Czerny, *Fingerfertigkeit;* Marmontel, *Mecanisme.*

THIRD YEAR

Tausig, *Studies;* Kullak, *Book III; Gradus ad Parnassum,* 1st half; Czerny, *Toccato;* Chopin, *Preludes.*

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FOURTH YEAR

Moscheles, *Op.* 70; *Gradus ad Parnassum*, 2nd half; Chopin *Etudes*.

It is not supposed that a rigid course can be given which will meet the requirements of individual students, but the foregoing outline represents, in a general way, the character of each year's work. Etudes especially are named, because they indicate grade and character of requirements more clearly than can be done otherwise. On the other hand, these studies are supplemented by ample selections from classic and modern authors for use in the parlor or concert room.

Upon graduation students will be expected to play acceptably from memory selections of the grade of Chromatic Fantasie and Fugue by Bach, Sonata op. 90 by Beethoven, Concerto in G minor (one movement) by Mendelssohn, La Fileuse by Raff, and Second Rhapsody by Liszt.

ORGAN

No previous knowledge of organ playing is required. The student must be well grounded in piano playing, be possessed of a correct technique, and be able to read plain four-part music.

The course of study is continuous, beginning with Stainer's *Organ School* or Whiting's *First Six Months on the Organ*, and following with the larger works of Rink and Best, supplemented by special studies by Thayer, Buck, Ritter, Schneider, Volckmar, and others. Selections from Bach's organ works, Mendelssohn's Sonatas and the compositions of modern composers are used.

Careful training is given in playing church music and voluntaries, the use of stops, and the mechanism of the instrument.

VOICE

The student must be able to read plain music and must have had an amount of training equal to the first half of Concone's *Fifty Lessons*, and comprising the usual technical study for the same period.

First Year: Tone Placing, Breathing, and Phrasing; Ballad Singing and the Sostenuto style; Technical and other studies of the grade of Bonaldi's *Six Vocalises*, Siebers *Vocalises;* Marchesi's *Exercises*, *Op.* 21, Book I.

Second Year: Concone's *Fifteen Vocalises;* Schubert's *Manual of Vocal Technique;* Marchesi's *Vocalises*, *Op.* 21, Book II; Ger-

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man and French songs, and easy oratorio and operatic arias, and recitatives.

Third Year: Schubert's *Special Studies;* Bordogni's *Bravura Studies,* and operatic and oratorio selections.

Fourth Year: Studies in bravura by Lamperti and Bordogni Cadenzas and larger forms of execution.

On graduation the student will be expected to sing acceptably selections (according to voice and school) from such songs and arias as: "He Was Despised," "Angels Ever Bright and Fair," "I Know That My Redeemer Liveth," and "Thou Shalt Break Them," by Handel; "With Verdure Clad," Rolling in Foaming Billows," and "In Native Worth," by Haydn; "If With All Your Hearts," "It is Enough," and "O Rest in the Lord," by Mendelssohn; "Infelice," by Verdi; "Roberto, tu che Adoro," by Meyerbeer; "Una Voce," and "Pro Peccatis," by Rossini.

VIOLIN

First Year: Hermann, *Scale Studies.* Kayser, *Violin Instructor, I and II.* Herbert Ries, *Violin School, Part I.* Easy melodious solos.

Second Year: Kayser, *Violin Instructor, III.* Kayser, *Etudes, Op.* 29. Schubert, *Violin School, IV.* Herbert Ries, *Violin School, Part III.* Solos by *Viotti, Rode, De Beriot.*

Third Year: Schradieck, *Violin Technic.* De Beriot, *School Part II. Etudes* by Dont, Kreutzer, and Schubert.

Solos by De Beriot, Leonard, Vieuxtemps, and Wieniawski.

THEORETICAL STUDIES

MUSICAL THEORY AND CHORAL PRACTICE

A one year course, twice a week, in the general theory of music, including notation, scale construction, intervals, distinctions of rhythm, etc., combined with a practical study of sight reading and choral singing.

This course is especially recommended to all students, whether of instrumental or vocal music, as furnishing a substantial foundation for all other work; it will also be found useful for those who contemplate teaching in public, or similar schools.

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HARMONY AND COUNTERPOINT*

The student must be able to read and play simple four-part music.

First year: Review of scales, and intervals, triads, seventh chords, augmented sixth chords, modulation, synopsis of suspension and appoggiatura.

Second year: Detailed treatment of modulation, suspension, appoggiatura, etc. Harmonizing melodies. Simple strict counterpoint.

Third year: Double counterpoint, canon and fugue.

HISTORY OF MUSIC

A course of lectures twice a week, extending through the year. In the first semester the lectures give a general survey of music before the Christian era, and down to the eighteenth century.

The second semester is devoted to the eighteenth and nineteenth centuries.

MUSICAL COMPOSITON

A year course, twice a week. One year of harmony is required as preparation.

PUBLIC SCHOOL MUSIC

Two courses in public school methods as applied to music are offered. The first is designed for teachers who will combine the teaching of other branches with the subject of music, in grade and high schools. The class will meet three times a week throughout the year. Two lessons each week will be devoted to the study of the technical points to be presented in the school and the practice of songs suitable for school use. The remaining lesson is taken up largely with the interpretation of songs and practice in conducting. This course will be of value to those who expect to teach in the public schools or who wish to conduct high school choruses. The course is open to University students without an additional fee. Persons not in the University will be admitted on the payment of the incidental fee of $10.

The second course is designed for those who wish to fit them-

*The courses in counterpoint, etc., and in musical composition are inserted here under their proper headings, because they are frequently taken as electives, but they represent graduate work for the students of the School of Music.

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selves for the special work of the supervisor of music in public schools. It includes the following subjects:

Rote songs and their application to school work. Elements of music as presented in the grades, and the best methods of teaching shown. Study of the child voice. Sight-singing and ear-training. Practice in teaching. Elementary harmony and musical form as presented in the high school. The problems of the supervisor and how to meet them. Study and interpretation of songs. Art of conducting. Practice in conducting.

The class meets three times a week throughout the year, although a student who has had sufficient previous training can complete the course in one semester. Certificates are granted to those who complete the course satisfactorily. This course involves a special fee. See Index for Tuition, under Music.

II. ACADEMIC COURSE

There are no requirements for entrance. Students are received and graded according to ability and amount of previous study. This course in all departments leads up to and overlaps the collegiate course. Students after reaching the proper stage of preparation may be transferred to the collegiate course, or may remain in the academic course, the work of the last three years being identical in both courses. But no certificate of excellence will be issued to any student who is not thoroughly fitted to enter the third year of the collegiate course.

GUITAR, BANJO, AND MANDOLIN

In response to the demand growing out of the popularity of these attractive instruments, the School of Music provides ample and excellent opportunities for their study. Special attention is given to expression, technique, and proper fingering. In general, correct methods leading to the highest efficiency are employed.

Text-books for Guitar: Carcassi, Sor, Ferranti, Holland, and Langley.

Text-books for Banjo: Dobson, Stewart, Henning, and others.

Text-books for Mandolin: School of Wessenberg, and Progressive Studies by Guiseppi, Branzoli, supplemented by solo selections.

ORCHESTRA

The University orchestra is composed of about fifty of the students of the University. The purpose of the organization is the study of the larger classical forms. It is open to all students who have sufficient knowledge of any orchestral instruments to pursue

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the work profitably. After two semesters' connection with the orchestra a student may receive a credit of one-fifth for each of the two following semesters.

BAND

A military band has been organized, open to all students. Two rehearsals are held each week. Freshmen and sophomores belonging to the band are exempt from military drill.

CHORAL UNION

The Choral Union is an organization of students of the University and citizens of Madison for the purpose of studying the oratorios and larger choral work of ancient and modern authors, interspersed with lighter part-songs and glees, and of adequately presenting the same in public performance. Very successful perpormances of Handel's *Messiah* and *Judas Maccabaeus*, Haydn's *Creation*, and Mendelssohn's *Elijah* and *St. Paul* have been given, and other works of similar magnitude will follow.

Applicants for membership are expected to be able to read plain music at sight. The rehearsals are held weekly from October until May. The annual membership fee is one dollar.

RECITALS AND CONCERTS

Student recitals, free to all students, and open to all others by invitation, are held at intervals during the collegiate year. Recitals and concerts by eminent artists are given from time to time at a low price to students of the School of Music.

Tuition

The school year is divided into two semesters of eighteen weeks each, but the tuition for musical instruction may be paid by the half-semester.

Half-Semester of Nine Weeks

Two Lessons a Week

PIANO

	½-hour lessons.	¾-hour lessons.	Hour lessons.
Miss Bird	$18.00	$25.00	$30.00
Miss Regan	18.00	25.00	30.00
Mrs. Sandberg	16.00	22.00	27.00
Mrs. Curtis	13.50	20.00	25.00
Miss Fowler	12.00	16.00	20.00

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Two Lessons a Week

VOICE

	½-hour lessons.	¾-hour lessons.	Hour lessons.
Miss Foresman	$18.00	$25.00	
Miss Smith, or Mr. Bredin	16.00	22.00	

ORGAN

Mr. Bredin	$13.50	$22.00	$27.00

VIOLIN, GUITAR, BANJO, HARP

Mr. Nitschke, Mrs. Brand. Mrs. Anderson	$ 9.00	$13.50	$18.00

MANDOLIN

Mr. Bach	$ 6.00	$ 9.00	$12.00

One Lesson a Week

PIANO

Miss Bird	$10.00	$13.50	$17.00
Miss Regan	10.00	13.50	17.00
Mrs. Sandberg	9.00	12.00	15.00
Mrs. Curtis	7.50	11.00	13.50
Miss Fowler	7.00	10.00	12.00

VOICE

Miss Foresman	$10.00	$13.50	
Mr. Bredin, or Miss Smith	9.00	12.00	

ORGAN

Mr. Bredin	$ 7.50	$11.00	$13.50

VIOLIN, GUITAR, BANJO, HARP

Mr. Nitschke, Mrs. Brand, Mrs. Anderson	$ 4.50	$ 6.75	$ 9.00

MANDOLIN

Mrs. Bach	$ 3.60	$ 5.40	$ 6.75

Diploma Fee, $5.00.

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PUBLIC SCHOOL MUSIC

Course for supervisors of public school music, per semester,..$20.00
Private lessons in public school music, each,.....$ 2.00
Public school certificate,.....$ 1.00

Theoretical studies may be taken in the University classes, and those who are not otherwise connected with the University are expected to pay the incidental fee of the College of Letters and Science which is $10.00 a semester. The fee, however, is not required of those taking only individual lessons in singing, or on some instrument.

Students are not received for less than half a semester except by permission of the Director of the School of Music. Students are expected to pay the tuition fees by the half semester or semester in advance.

No student is entitled to lessons until tuition has been paid.

No deduction can be made for absence from lessons, except for long continued illness, in which case the School of Music will share the loss equally with the student.

No student is expected to take part in any public entertainment, without the consent of his teacher and the Director.

Students who, by reason of deficient musical ability, neglect of study, or any other valid reason, fail to make satisfactory progress, may be dropped from the classes.

The pianos in Music Hall may be used for practice for a limited number of hours daily by students of the School of Music on payment of a fee of from four dollars to ten dollars per semester. Pianos may be rented from dealers at from three to six dollars a month.

The office of the Director in Assembly Hall at the University will be open for several days before the opening of each semester for the reception of pupils and assignment of lessons. After the opening of the University the Director may be found daily at Assembly Hall, from 10 to 11, or at the office in the Kroncke building from 9 to 10.

For further information, address

F. A. PARKER, Director, 14 W. Gilman St., or
MISS BESSIE BRAND, Secretary School of Music,
Madison, Wis.

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THE WASHBURN OBSERVATORY

STAFF

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
GEORGE C. COMSTOCK, Ph. B., LL. B., Director. Professor of Astronomy.
ALBERT S. FLINT, M. A., Astronomer.

WILLIBALD WENIGER, Student Assistant.
HELEN FLINT, Student Assistant.
EDWARD J. FILBEY, Student Assistant.
SAMUEL R. HATCH, Student Assistant.
LESLIE M. MOSS, Clerk.

The Washburn Observatory was established in the year 1878 through the munificence of the late Gov. C. C. Washburn. Although its obligations and opportunities as a branch of a teaching university have not been ignored, the energies of its staff from the beginning have been directed mainly to astronomical research. Among the lines of research that have been cultivated may be specified the measurement of the positions and motions of the heavenly bodies, the discovery and measurement of double stars, the investigation of variable stars, the study of changes of latitude and of the amount and character of the atmospheric refraction, the determination of the amount of the aberration of light, problems of stellar color, proper motions of faint stars, and a systematic investigation of the parallaxes of all accessible stars which have large proper motions.

The principal instruments of the observatory are:

An equatorially-mounted telescope of 15½ inches aperture, constructed by Alvan Clark & Sons, and provided with graduated circles, driving clock, a filar micrometer, double image micrometer by Steinheil, a spectroscope, astro-photometer, and a very complete set of eye-pieces. A meridan circle, by A. Repsold & Sons, of Hamburg, with collimators, transit micrometer, and the usual accessories of such an instrument. The objective of the instrument was made by the Clarks, and has an aperture of 4.8 inches and a focal length of 58 inches. The circle is graduated to 2 min-

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utes of arc. For several years this instrument has been employed for an extensive series of determinations of stellar parallax. There are also a sidereal clock by Höhwü, of Amsterdam, two mean time clocks by Howard, of Boston, all excellent time-pieces, and a chronograph, by Fauth & Co., of Washington.

In the Student's Observatory are mounted a six-inch equatorial telescope, by Alvan Clark & Sons, and a transit instrument of the broken telescope type, by Bamberg. These instruments, while primarily intended for instruction, are well adapted to and are employed for certain classes of original work. In particular, the equatorial telescope has been provided with reflecting prisms (Lowey), and employed as one of the principal instruments of the observatory in an investigation of the refraction and the constant of aberration; and the Bamberg instrument is used for latitude determinations by the Talcott method and for the time service of the observatory. The observatory also possesses a considerable number of subsidary instruments, such as portable telescopes, spectroscopes, photometers, chronometers, sextants, an engineer's transit, an altazimuth, a universal instrument of the German type, a personal equation machine, a spherometer caliper, seismoscopes, photographic apparatus, and a complete set of meterological instruments.

The Woodman Astronomical Library, established in connection with the observatory, and supported from the income of a fund given by the late Cyrus Woodman, Esq., possesses a large and valuable collection of works upon astronomy and kindred subjects.

By provision of law the results of important investigations conducted at the Washburn Observatory are published by the State, and under this provision eleven volumes, representing the more important work done at the observatory, have been issued.

Students of sufficient technical attainments are admitted to the observatory and take part in the investigations in progress. Meritorious original work of such students may be included in the Publications of the Observatory, or in the Bulletins of the University. For the courses of instruction in astronomy see Index, under Astronomy.

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UNIVERSITY EXTENSION

STAFF

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
E. W. PAHLOW, M. A., Secretary, and Instructor in European History.

T. S. ADAMS, Ph. D., Assistant Professor of Political Economy.
E. D. ANGELL, Instructor in Physical Training.
STORM BULL, M. E., Professor of Steam Engineering.
D. E. BURCHELL, M. A., Professor of Business Administration.
VICTOR COFFIN, Ph. D., Assistant Professor of European History.
T. H. DICKINSON, M. A., Instructor in English.
J. C. ELSOM, M. D., Professor of Physical Training, and Director of the Gymnasium.
J. C. FREEMAN, LL. D., Professor of English Literature.
W. D. FROST, Ph. D., Assistant Professor of Bacteriology.
E. M. GRIFFITH, Lecturer on Forestry; Secretary State Forestry Commission.
A. R. HOHLFELD, Ph. D., Professor of German.
CAROLINE L. HUNT, B. A., Professor of Home Economics.
ELLEN A. HUNTINGTON, B. A., Instructor in Home Economics.
H. H. JACOBS, M. A., Warden, University Settlement, Milwaukee.
JOSEPH JASTROW, Ph. D., Professor of Psychology.
LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.
MARY AGNES LATHROP.
H. E. LEGLER, Secretary, Wisconsin Free Library Commission.
F. W. MEISNEST, Ph. D., Instructor in German.
JULIUS E. OLSON, B. L., Professor of the Scandinavian Languages and Literature.
M. V. O'SHEA, B. L., Professor of the Science and Art of Education.
CARL PRAY, B. A., Professor of History, State Normal School, Milwaukee.
J. F. A. PYRE, Ph. D., Assistant Professor of English Literature.
P. S. REINSCH, Ph. D., Professor of Political Science.
H. L. RUSSELL, Ph. D., Professor of Bacteriology.
F. C. SHARP, Ph. D., Professor of Philosophy.
GRANT SHOWERMAN, Ph. D., Assistant Professor of Latin.

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C. F. SMITH, Ph. D., Professor of Greek and Classical Philology.
S. E. SPARLING, Ph. D., Assistant Professor of Political Science.
GRAHAM TAYLOR, Director Chicago Institute of Social Science.
H. J. THORKELSON, M. E., Assistant Professor of Steam Engineering.

Note.—In addition to the regular members of the University Extension staff, other members of the University faculty are willing to lend their services to the work that the University is carrying on throughout the State. As, however, University duties will not admit of their accepting all invitations, it will be necessary for the Secretary to consult with them in each case. Correspondence will be gladly received by the Secretary regarding lectures to be given by these members of the Faculty, as well as by those on the University Extension staff.

It is the aim of the University to lend its aid to all educational activities of any kind which are being carried on in the State. It regards the fulfillment of this aim as one of its greatest obligations towards the people of the commonwealth, and one in the pursuit of which it has always been active. Through its system of high school inspection, and its intimate relation with the colleges and Normal schools, and with the teachers' conventions, it has helped to systematize the educational work of the State, and raise it to a higher level of efficiency.

Most of this work, however, has been carried on among those who have the education of others in charge. There is another great class to which the University wishes to extend its stimulus and guidance; namely, those persons who are carrying on their own education. They have been aided in their efforts, to some extent, by short courses of lectures and demonstrations, given in their local centers as well as at the University. In fact, along certain lines, this Extension work of the University has won for it a national reputation. This is true particularly of the work of the Farmers' Institutes, which have been conducted throughout the State many years by the College of Agriculture. Recently this Extension work abroad has been supplemented by Extension work at home, by the establishment of a Farmers' Course in Agriculture, which is in session at the University each year during the first two weeks of February. The programmes of the Farmers' Course as well as those of the Farmers' Institute are of an extremely practical character, and this work has bestowed upon the State benefits which, on its agricultural side, are incalculable.

In connection with the Farmers' Course in Agriculture, another branch of University extension at home, called the Housekeepers' Conference, is carried on at the University under the auspices of the department of Home Economics. This work is

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likewise of a practical character, consisting of talks and demonstrations on the preparation of food, sanitation, the judging of textiles for household use, etc.

The Extension work along other lines of educational activity has not as yet been so well systematized, but even here much has been done. During the last college year over forty members of the faculty, exclusive of the Agriculture faculty, lectured in eighty-three localities, giving a total of over two hundred lectures.

The University, however, is not satisfied with this limited success, and aims, by systematizing the educational work among adults through its University Extension office, to widen its sphere of influence. It realizes the importance of such work for the future well-being of our country, and for the maintenance of our democratic institutions, and desires to stimulate it in every possible way. The nature of the assistance which it can offer will vary, of course, with the nature of the demand. It will be its aim through the University Extension office to meet each demand in the way best fitted to obtain the desired results.

The University Extension is fortunate in having in its work the coöperation of the Wisconsin Free Library Commission, the secretary of which is a member of its staff of lecturers. This Commission is in intimate contact with the smaller communities of the State, which it serves in many ways, especially by loaning collections of books and periodicals to such as have no adequate library facilities of their own.

Lecture Courses

A list of lecture courses offered by the University Extension is given below, together with a statement of the expenses involved. These courses consist, usually, of six lectures, given by the same lecturer, though arrangements can be made for fewer or even for single lectures. It is also possible to arrange for courses of six lectures, each given by a different lecturer, and treating of different subjects. Specimen courses of this kind are given in the University Extension announcement, which will be sent upon application to the Secretary.

Where such courses are arranged for by public school boards, it is possible, under the act of the Wisconsin legislature of 1901, to have them maintained at public expense. By another act, passed by the legislature in 1905, trustees of public libraries are per-

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mitted to give the use of the auditoriums in their buildings for public lectures.

Women's Clubs

In addition to providing lecturers, the University Extension will aid the Women's Clubs of Wisconsin as much as possible in planning their work for the year, or for several years in advance. It will be glad to supply topics for study, as well as outlines of these topics, suggesting the best way of taking them up, and likewise suggesting the best books and periodicals bearing upon them. In many cases small collections of these books and periodicals can be borrowed for a considerable period by applying to the Wisconsin Free Library Commission.

Study Clubs

The University Extension is ready to assist study clubs in every possible way. From time to time, the Secretary will visit the different parts of the State and aid the local centers in organizing or perfecting the organization of such clubs. When organized, the University Extension will be of further assistance either through direct contact of some member of its staff with the class, or through supervision of the work of the class, or through a combination of both the foregoing methods. In the first case, the class will be in charge of a member of the Extension staff, who will meet with it weekly or bi-weekly for a lecture or demonstration, the work to extend over a period of six or twelve weeks. In the second case, the class will be in charge of a competent University graduate residing in the local center, who has submitted a satisfactory outline of the proposed work to the Secretary to University Extension. In the third case, the local instructor will meet with the class once or twice a week, and these meetings will be supplemented by a weekly or bi-weekly meeting with a member of the Extension staff, for a lecture or demonstration.

Clubs can be formed to pursue the study of almost any subject, and to meet the demands of almost any group or organization of persons. For example, classes for grammar school and high school teachers, to take up some branch of their class work; classes for mechanics, to take up mecanical drawing, steam, structural, or railway engineering, etc; classes for business men, accountants, and bookkeepers, bank clerks, etc., to take up the study of business administration, purchasing, advertising, credit business,

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transportation, public finance, etc.; classes for members of labor organizations, to study some specific problem connected with their trade or industry, or some problem of general interest, as factory legislation, economic history and theory, etc.

The work of these clubs can be supplemented by work at the Summer School of the College of Letters and Science, or the Summer School for Artisans, conducted by the College of Engineering. These sessions begin immediately after the close of the university year and continue for six weeks.

Where the work of the study club is of a character approved by the Faculty of the University, a certificate will be awarded to the members passing a satisfactory examination, which will have a recognized value on the University records, and which will be credited accordingly, should the holder ever study at the University.

Debating Societies

In coöperation with the Legislative Reference Department of the University Free Public Library Commission and with the debating societies of the University, the University Extension will supply other debating societies in any part of the State, as far as possible, with subjects for debate and references on them. Where a society is engaged in the serious study of some special problem, as for example immigration, labor legislation, railroad rates, etc., arrangements can be made for one or more lectures upon the subject by a member of the Extension staff.

Teachers' Conventions and Institutes

The University Extension will provide speakers for these meetings as far as the regular work of the University will allow.

Commencement Addresses

The University Extension can arrange for Commencement addresses to be delivered by members of its staff. The charges will be arranged in each case with the speaker desired, through the Secretary to University Extension.

Expenses

LOCAL EXPENSES.—These include hall rent, printing, advertising, etc., and the stereopticon, where the lecture is illustrated.

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Under two recent acts of the Legislature, public school boards and trustees of public libraries are permitted to give the use of the auditoriums in their buildings for public lectures.

UNIVERSITY CHARGES.—These consist of:—

(1) A fee of $100 for a course of six lectures given by one lecturer. Where fewer lectures are desired or full courses of six lectures given by different lecturers, the fees are arranged for through the Secretary to University Extension. In many cases they will be on the same basis as the regular courses, though in some, they may be somewhat higher.

(2) The lecturer's traveling expenses, including sleeping car and meals when necessary. Where a lecturer delivers two or more lectures in neighboring centers, these charges are divided among them.

(3) The lecturer's hotel bill. Where the lecturer is entertained by members of the local center, this item disappears.

EXPENSES OF STUDY CLUBS.—Where classes are conducted by a local instructor, with or without the coöperation of a member of the Extension staff, the fees for instruction must be determined by arrangement with him. The Secretary to University Extension will be glad to help make satisfactory arrangements. Charges for class talks and demonstration by members of the Extension staff are the same as for the public lectures.

In many cases it will be possible to have the study clubs as well as the lecture courses conducted under the auspices of the public school boards, in which case, under the act of the Legislature mentioned above (see Lecture Courses), they can be maintained at public expense.

SYLLABUS.—Where it is possible, syllabi will be planned by members of the Extension staff, and sent free of charge to organizations making application for them.

The Secretary will be glad to furnish more detailed information regarding any branch of this work, and invites correspondence. Bulletins will be issued from time to time, stating in greater detail the work of the Extension office. These will be sent on application. Address all communications to the Secretary to University Extension, Madison, Wis.

LECTURE COURSES OF 1906-1907

Professor JOSEPH JASTROW. Illustrations of Psychological Principles; The Sub-Conscious.

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Professor F. C. SHARP. Problems of Moral Progress.

Professor M. V. O'SHEA. Applications of Psychology to Education and Life; Modern Education; Contemporary Educational Ideals.

Professor E. A. ROSS. Race and Society; The Psychic Life of Society; Tunis, the Western Outpost of the Orient (Illustrated).

Assistant Professor T. S. ADAMS. Labor Problems; Problems in Taxation.

Rev. H. H. JACOBS. Concrete Problems in Sociology.

Professor GRAHAM TAYLOR. Welfare Work.

Assistant Professor VICTOR COFFIN. The Transition from the Old Regime to the Nineteenth Century; The Political Development of the chief European States in the Nineteenth Century.

Secretary H. E. LEGLER. The History of Wisconsin (Illustrated); The History of Book-Making, Ancient and Modern (Illustrated).

Professor P. S. REINSCH. The Constitution and the Founding of the Federal Government; Contemporary World Politics; Historic Towns and Sites of Italy.

Assistant Professor S. E. SPARLING. The Modern City and its Problems; American Political Parties and their Relation to Government.

Professor C. F. SMITH. Greek Life (Illustrated).

Assistant Professor GRANT SHOWERMAN. Greek Architecture; Greek Sculpture; Historic Sites in Greece; Historic Sites in Italy; Remains of Ancient Rome; Roman Life; Modern Italy and its Life. (All courses in this series illustrated.) Classical Literature. (Illustrated readings and lectures).

Professor J. C. FREEMAN. English Life and Literature; Shakespeare; The Great Epics of the World; American Life and Letters.

Assistant Professor J. F. A. PYRE. American Writers and American Culture; Typical English Poems; Art and Life.

Mr. T. H. DICKINSON. The Modern Drama.

Mrs. MARY AGNES LATHROP. Some of the Songs of English Literature (with vocal illustration).

Professor A. R. HOHLFELD. Epochs of German Literature; Goethe, the Man and the Poet; The German Drama of the Nineteenth Century; Glimpses of Modern Germany (Illustrated.)

Dr. F. W. MEISNEST. Schiller (Illustrated).

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Professor JULIUS E. OLSON. Early Scandinavian History and Literature; Modern Norwegian Authors.

Professor LOUIS KAHLENBERG. Chemistry.

Professor H. L. RUSSELL. Microbes and their Work (Illustrated).

Assistant Professor W. D. FROST. Microbes and their Relation to the Public Health (Illustrated).

Professor D. E. BURCHELL. Business Administration.

Professor STORM BULL. Steam Engines; Steam Turbines; Gas Engines.

Assistant Professor H. J. THORKELSON. Boilers; Compressed Air Machinery.

Professor CAROLINE L. HUNT. Sanitation; The Social Value of Home Economics.

Miss ELLEN A. HUNTINGTON. Food.

Professor J. C. ELSOM. Physical Training; The German System of Gymnastics; Highways and Byways of the South (Illustrated).

Mr. E. D. ANGELL. The Educational Value of Play; The History and Development of Physical Training; Oberammergau and its Passion Play (Illustrated).

State Forester E. M. GRIFFITH. Forestry in Wisconsin; The Work of the United States and the Countries of Europe to Preserve their Forests (Illustrated).

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PHYSICAL TRAINING

DR. ELSOM, MISS MAYHEW, MR. O'DEA, MR. ANGELL, AND MISS BASS

Physical training is required of all freshmen and sophomore students on two days of each week, from November to May. The aim of the department is to give the students such exercises, games, and sports as will best create and maintain a vigorous physical health. The department endeavors to reach a large number of students, especially the weak and undeveloped, and to give to all exercise that will be not only beneficial but interesting.

The Gymnasium is one of the largest and best equipped in the country. Its size is 200 feet in length by 100 feet in width. On the ground floor are to be found the necessary offices, the locker rooms, the bath rooms, swimming pool, and gun room. On the second floor, besides the necessary offices and store rooms, there is an unobstructed hall 165 by 98 feet, used for the purposes of gymnastic exercise and military drill. The gymnasium equipment includes the usual apparatus and developing machines, which are supplied in sufficient quantity to meet the requirements of large classes. The third floor contains six large hand-ball courts, two running tracks, eight hydraulic rowing machines, and two rifle ranges.

A large athletic field is provided for the use of students, and all intercollegiate and other games and meets are held here. The field is equipped with two large grand-stands, two running tracks, and other necessary features.

COURSES IN PHYSICAL TRAINING FOR MEN

First Year. First Semester

A. Physical Examinations. Required of all freshmen. The examination includes about fifty measurements of the body, various strength tests, the examination of heart and lungs and other vital organs, tests for vision and hearing when necessary, and special tests for curvature of spine, and other physical inequalities. Corrective exercise is prescribed and advice is given concerning special needs of the individual student. One examination is required each semester.

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Those outside of the regular classes may be examined by appointment. Dr. ELSOM.

1. Gymnastics. Cross-country running; calisthenic drills, dumbbells, wands, etc.; indoor games. *Two periods a week; one fifth credit.* Dr. ELSOM.

First Year. First Semester

2. Gymnastics. Continuation of course 1. Lectures on the physiology of exercise, personal hygiene, health culture, etc. These lectures take the place of the regular gymnasium classes on the days when the lectures are given. *Two periods a week; one-fifth credit.* Dr. ELSOM.

Second Year. First Semester

3. Gymnastics. Cross-country running; gymnasium drill; elementary work on gymnastic apparatus, horses, parallel bars, vaulting, horizontal bars, bucks, mats, ladders, rings, etc. Gymnastic games. *Two periods a week; one-fifth credit.* Mr. ANGELL.

Second Year. First Semester

4. Gymnastics. Continuation of work of first semester; swimming. *Two periods a week; one-fifth credit.* Mr. ANGELL.
5. Gymnastics. Special classes. As a substitute for the required course in gymnastics (courses 1, 2, 3, and 4), credit in the following special classes is given to men sufficiently proficient to take the work:

5a. Advanced Apparatus Work, to which candidates for the gymnastic team are admitted. Mr. ANGELL.

5b. Class in Track and Field Athletics, to which men are admitted who have qualified in preliminary try-outs. The work consists of starts, short dashes, high and broad jumping, pole-vaulting, shot-putting, and long distance running. Mr. ANGELL.

5c. Cross-Country Running. Members of the Cross-Country Club working regularly until Thanksgiving are credited in Physical Training. Mr. ANGELL.

5d. Swimming. The class meets twice a week and is open to all men who are unable to swim. The various strokes will be taught, also diving, under-water swimming, and life-saving methods. Dr. ELSOM.

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5e. Boxing. All the principal blows will be taught, as well as counters, guards, and parries. Mr. O'DEA.

5f. Fencing. A class for beginners, who will be taught the position of en guard, and all principal attacks and parries. Mr. ANGELL.

5g. Special Development Class. To this class will be admitted men who are unable to take the work of the regular classes. Members of this class will be assigned work tending to correct any physical deficiency, and special exercises on the developing appliances will be given in each case. Dr. ELSOM.

5h. Teachers' Class. To this class will be admitted those who desire to teach physical training. The methods and principles of gymnastics will be given, and the gymnastic system will be illustrated. Instruction in both light and heavy gymnastics will be included in the course. Dr. ELSOM and Mr. ANGELL.

PHYSICAL TRAINING FOR WOMEN

Chadbourne Hall contains a finely equipped gymnasium for the use of the young women attending the University. The room is two stories high, has a floor space of 71 by 40 feet, and is provided with twenty-seven dressing rooms and 128 lockers. The dressing rooms connect with shower baths, supplied with hot and cold water, furnishing ample bathing facilities for those who take gymnastics.

The main objects of the training for women are the acquiring and maintaining of good health and the producing of a good physical foundation for mental activity. Other results are poise, control, grace, and development.

Each student will undergo a careful physical examination on entering the department, in order that the physical condition may be known, and suitable exercise prescribed for individual cases. A second examination is given during the second semester, in order that the improvements and benefits of the course of exercise may be shown.

The apparatus is complete and varied, consisting of chest weights, dumb-bells, wands, bar-bells, etc., besides a complete outfit of Swedish apparatus and other forms of appliance for development and physical improvement. Music is used in all class drills.

The gymnasium suit requires four yards of double-width (54 in.) dark blue serge, and consists of two pieces, a loose shirtwaist and bloomers. The waist has a sailor collar trimmed with nar-

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row white braid. The Butterick pattern may be used. The suit can be obtained here for $5.00.

The work is required of all freshman and sophomore students. The freshmen are required to meet in the gymnasium on the first Thursday of the college year at 4 o'clock. Sophomores will meet on the same day at 5 o'clock.

Out-door sports for women are thoroughly organized and are under the direction of a competent instructor. They are placed upon the same basis as class-work, and an equal credit is given for such training.

The Women's Athletic Association is maintained to further all out-door sports; tennis, field hockey, basketball, cross-country walking, bowling, etc.

Course in Teachers' Gymnastics

A class in theory of physical training and in practice of teaching gymnastics meets once a week during the year. The credit given is one-fifth a semester.

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MILITARY SCIENCE AND TACTICS

CAPTAIN CHARLES A. CURTIS, U. S. A.

This department of the University is maintained in accordance with state and federal laws. By the regulations of the University, all able-bodied male students of the freshman and sophomore classes are required to take military drill.

The work of the department embraces a course in drill regulations, a course of lectures on military subjects, and practical instruction in the school of the soldier, company, and battalion, target practice, artillery drill, and signal drill. All commissioned officers, the sergeant-majors, quartermaster-sergeants, and first sergeants are required to take this course. The credit for drill regulations and the lecture course is that of a two-fifths study.

Freshmen who, prior to entering the University, have received the equivalent of one year's instruction in the University battalion, may, at the discretion of the Commandant, be required to drill one year only, *provided*, that they furnish certificates from the principals of military schools they have attended, or the commanding officers of military companies in which they have served for a year or more, setting forth in detail the military duty performed; and that they take the full course in drill regulations, maintaining a good class standing; except that the Commandant may exercise the further discretion of deferring the required drill of all cadets of such military schools or members of companies to the second or sophomore year. Freshmen or sophomores who have served in the army or navy of the United States may receive full credit for drill at the University without further military instruction.

No student is entitled to excuse from drill on the ground of employment unless such employment is necessary for his support. It is not the intention of the University to force students to drill when such action would practically compel the student to leave the University. On the other hand, students cannot be permitted to engage in other occupations which are not necessary for their support and be excused from drill on the ground that such employ-

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ment occupies the drill hour. In such a case drill should be regarded the same as any other study.

Drills will begin at the opening of the first semester and be held at least twice a week throughout the year.

Students of the freshman or sophomore classes, who enter, as candidates, the crews and athletic teams recognized by the Athletic Council, may be excused from drill when regularly elected to membership in such organizations.

When a member of a crew or an athletic team shall be discharged from such crew or team he will report to the Commandant for drill at the next drill succeeding his discharge.

All appointments to office in the companies shall originate in the sophomore class, but officers may be promoted and continued in office during their junior and senior years.

Students excused from drill will be required to take, before graduation, an additional one-fifth study in the academic course for each semester in which they were excused from drill.

The uniform of the regiment is similar to the fatigue or undress uniform of the United States army, and can be obtained in Madison at a cost of $9.50 to $15.00.

Organization

The organization is that of a regiment of infantry, consisting of two battalions of three or more companies each, a platoon of artillery, a brass band, a trumpet corps, and signal and target detachments. These organizations will be supplied with a full quota of officers. Students will enter the infantry regiment and afterward be specially assigned to the other organizations at the discretion of the Commandant.

The university fees of cadets appointed to all grades above that of lieutenant will be remitted. The same fees and an additional prize of fifty dollars will be paid the cadet colonel, lieutenant colonel, and adjutant. These officers will act as assistant instructors in Military Science and Tactics.

Upon graduation specially qualified students receive from the Governor of Wisconsin commissions of brevet second lieutenants in the State National Guard, subject to assignment to duty for five years after graduation.

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ROSTER OF UNIVERSITY CORPS OF CADETS FOR 1905-06

Commandant

Captain Charles A. Curtis, U. S. Army, Colonel Wisconsin National Guard.

Surgeon

Lieutenant-Colonel James C. Elsom.

Cadet Officers

REGIMENTAL, FIELD, AND STAFF

Colonel Henry C. Duke.
Lieutenant-Colonel George R. Ray.
Major Howard C. Hopson, Adjutant and Inspector.
Quartermaster William J. Hartung.
Sergeant-Major Julius H. Lokke.
Sergeant Clement N. Johnson, Chief Trumpeter.

FIRST BATTALION

Major Perry C. Stroud.
First Lieutenant Herman H. Karrow, Adjutant.
First Lieutenant Thomas R. Hefty, Quartermaster.
Sergeant-Major Austin Walline.

SECOND BATTALION

Major Albert L. Lindemann.
Second Lieutenant Walter Nebel, Adjutant.
Howard L. Beye, Quartermaster Sergeant.

COMPANY OFFICERS

Company A

Captain Albert A. Johnson.
1st Lieut. Gustav G. Blatz.
2nd Lieut. Edgar B. Colladay.
1st Sergt. Earl H. Wells.

Company B

Captain Walter S. Underwood.
1st Lieut. Clarence O. Brandel.
2nd Lieut. John H. Thickens.
1st. Sergt. Frederick P. Bagley.

Company C

Captain Paul W. Hammersmith.
1st Lieut. Charles A. Mercein.
2nd Lieut. Walter C. Lindemann.
1st Sergt. Morris J. Cashel.

Company D

Captain Walter F. Teschan.
1st Lieut. Miles W. Birkett.
2nd Lieut. Phillip L. Schwenker.
1st Sergt. Corydon L. Rich.

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Company E	*Company F*
Captain Benjamin F. Bennett, Jr.	Captain William N. Winkler.
1st Lieut. Ernest F. Rice.	1st Lieut. Adolph Heinz.
2nd Lieut. Edgar F. Robinson.	2nd Lieut. Robert F. Egelhoff.
1st Sergt. Roy E. Schiess.	1st Sergt. Walter C. Caldwell.

TARGET DETACHMENT	SIGNAL CORPS
Captain Clayton R. Murdock.	Captain Charles R. Clark.
1st Lieut. Clarence H. Shelton.	1st Lieut. Robert D. Lewis.
1st Sergt. John W. Cunningham.	1st Sergt. Frank M. Kennedy.

BAND

Captain Herman E. Owen, Instructor.
1st Lieut. Gilbert A. Diestler.
Sergt. Carl J. Snyder.
Drum-Major Howard A. Parker.

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THE SUMMER SESSION

OFFICERS OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.

D. C. MUNRO, A. M., Director of the Summer Session. Professor of European History.

JANE ADDAMS, LL. D., Head Resident of Hull House. Lecturer in Political Economy.

C. E. ALLEN, Ph. D., Assistant Professor of Botany.

C. R. BARDEEN, A. B., M. D., Professor of Anatomy.

G. A. BLISS, Ph. D., Assistant Professor of Mathematics, Princeton University.

A. P. BRIGHAM, A. M., Professor of Geology and Natural History, Colgate University.

L. H. BURCH, Professor of Manual Arts, Western Illinois State Normal School.

D. E. BURCHELL, A. M., Professor of Business Administration.

VICTOR COFFIN, Ph. D., Assistant Professor of European History.

W. W. DANIELLS, M. S., Sc. D., Professor of Chemistry.

E. C. ELLIOTT, Ph. D., Associate Professor of Education.

J. C. ELSOM, M. D., Professor of Physical Training. Director of Gymnasium.

R. T. ELY, Ph. D., LL. D., Professor of Political Economy.

H. R. FAIRCLOUGH, Ph. D., Professor of Latin, Leland Stanford Junior University.

W. D. FROST, Ph. D., Assistant Professor of Bacteriology.

W. F. GIESE, A. M., Associate Professor of Romance Languages.

R. A. HARPER, Ph. D., Professor of Botany.

A. R. HOHLFELD, Ph. D., Professor of German.

S. J. HOLMES, Ph. D., Assistant Professor of Zoology.

C. H. HUBERICH, D. C. L., J. U. D., Assistant Professor of Law, Leland Stanford Junior University.

LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.

A. G. LAIRD, Ph. D., Assistant Professor of Ancient Languages.

E. J. LAKE, B. S., Assistant Professor of Art and Design, University of Illinois.

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H. B. LATHROP, A. B., Associate Professor of English.
R. L. LYMAN, A. B., Assistant Professor of Rhetoric and Oratory.
ABBY S. MAYHEW, Assistant Professor of Physical Training.
E. B. MCGILVARY, Ph. D., Professor of Philosophy.
J. D. PHILLIPS, B. S., Professor of Drawing.
J. F. A. PYRE, Ph. D., Assistant Professor of English Literature.
P. S. REINSCH, Ph. D., Professor of Political Science.
E. C. L. C. ROEDDER, Ph. D., Assistant Professor of German Philology.
G. C. SELLERY, Ph. D., Assistant Professor of History. Assistant Director of the Summer Session.
GRANT SHOWERMAN, Ph. D., Assistant Professor of Latin.
C. S. SLICHTER, M. S., Professor of Applied Mathematics.
H. A. SMITH, M. A., Professor of Romance Languages.
B. W. SNOW, Ph. D., Professor of Physics.
A. H. TAYLOR, B. S., Assistant Professor of Physics.
A. W. TRESSLER, A. B., Inspector of Schools.
AUGUSTUS TROWBRIDGE, Ph. D., Professor of Mathematical Physics.
T. K. URDAHL, Ph. D., Professor of Political and Social Science, Colorado College.
E. K. J. H. VOSS, Ph. D., Professor of German Philology.
W. H. WILLIAMS, M. A., Professor of Mathematics, State Normal School, Platteville.

Instructors and Assistants

B. M. ALLEN, Ph. D., Instructor in Anatomy.
ARTHUR BEATTY, Ph. D., Instructor in English.
E. A. COOK, B. L., Instructor in English.
W. F. DEARBORN, Ph. D., Instructor in Education.
E. B. HUTCHINS, Jr., Ph. D., Instructor in Chemistry.
G. T. KLINE, Technician and Artist in Anatomy.
GOTTFRIED LEHMANN, Assistant in German.
W. G. MARQUETTE, B. S., Assistant in Botany.
F. W. MEISNEST, Ph. D., Instructor in German.
L. F. MILLER, M. A., Instructor in Physics.
U. B. PHILLIPS, Ph. D., Instructor in American History.
C. M. PURIN, Assistant in German.
G. M. REED, A. M., Assistant in Botany.
F. L. SHINN, A. M., Instructor in Analytical Chemistry.

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Other Officers

E. F. RILEY, Secretary of the Regents.
W. D. HIESTAND, University Registrar.

GENERAL INFORMATION

The University of Wisconsin will hold in 1906 its eighth Summer Session. This session will continue for six weeks, beginning Monday, June 25, and closing Saturday, August 4. While the Summer Session of the University includes the Summer School for Teachers, which has been in operation for some years, it is not an enlargement of that school, but has a different purpose. This additional term of the University will provide elementary, advanced, and graduate instruction throughout the range of subjects ordinarily covered by the Faculty of Letters and Science.

The Summer Session of the University will meet the wants of teachers and special undergraduates who desire to broaden and deepen their knowledge; of regular undergraduates who desire to shorten their University course; and of graduates who wish to devote a part of their vacation work to advanced courses. Students may enter in the Summer Session instead of waiting until the fall semester. This is necessary in the case of students who plan to complete the college course in three years. It is advisable for those who are weak in language or other preparation. In general, it is advantageous for a new student to take one or two courses in the Summer Session. He thus becomes familiar with University methods of instruction; he receives more personal attention, as the classes in summer are smaller; his experience and the advice of his instructor enable him to shape his later course of study more wisely. An important feature of the announcement of many of the departments of the Summer Session is the provision for special, advanced, or research work adapted to individual students. Thus students who wish to carry on their investigations with more adequate library or laboratory facilities than their present situation affords will find here individual guidance and the ample equipment necessary to their research.

The expenses will be the same, whether the work is done in the Summer Session of the University, in the Summer School, or partly in each.

Terms of Admission

The requirements for admission are the same for the Summer Session as for the other sessions of the University. (See page 60.) Teachers are permitted to enter, without examination, such

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courses of study in the Summer Session as they are prepared to take to advantage.

Students from high schools will be admitted to the elementary courses of the Summer School without special examination. They may also be admitted to University courses for which they are qualified, but University credit will be given only to students who have satisfied the regular entrance requirements of the University.

Fees

The fees for the Summer Session of the University and the Summer School are the same. A general fee of $15 will be charged.

Laboratory fees are charged in the various scientific laboratories at rates proportional to those for the regular sessions of the University. The laboratory deposit for any course in chemistry is $10, with a refund proportional to the amount of breakage and material used. In botany and zoology the fee is $1.25 for each unit hour of work performed; that is, for each thirty-two hours of time spent in the laboratory. In the physical laboratory the fee is $2 for each unit hour. A fee of $2.50 is charged for the course in vertebrate anatomy, and $10 for the course in human dissection.

Excursions

Excursions on Saturday are arranged so that students may have an opportunity of visiting interesting and picturesque localities near Madison. These excursions offer opportunities for field work in various subjects, as well as pleasant outings. Full details of all excursions will be announced each week.

DEPARTMENTS OF STUDY

Note.—A more detailed statement of the courses here given may be found in the special announcement of the Summer Session, which may be had upon application to the Registrar of the University.

EDUCATION

ASSOCIATE PROFESSOR ELLIOTT, INSPECTOR TRESSLER, AND DR. DEARBORN; PROFESSOR PHILLIPS, OF THE COLLEGE OF ENGINEERING, PROFESSOR LAKE, OF THE UNIVERSITY OF ILLINOIS, AND PROFESSOR BURCH OF THE WESTERN ILLINOIS STATE NORMAL SCHOOL

1. History of Education. *M., Tu., W., Th., F., at* 8. Two-fifths credit. Associate Professor ELLIOTT.
2. Administration and Supervision of Education. *M., Tu., W., Th., F., at* 9. Two-fifths credit. Associate Professor ELLIOTT.

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3. Secondary Education in the United States. *M., Tu., W., Th., F., at* 8. Inspector TRESSLER.
4. Educational Psychology. *M., Tu., W., Th., F., at* 10. Two-fifths credit. Dr. DEARBORN.
5. Advanced Educational Psychology. *M., Tu., W., Th., F., at* 11. Two-fifths credit. Dr. DEARBORN.
6. Manual Training for Elementary Schools. *M., Tu., W., Th., F., at* 4. Professor BURCH.
7. Manual Training for High Schools. *M., Tu., W., Th., F.,* 2 *to* 4. Professor PHILLIPS.
8. Art Work for Elementary and High Schools. *Tu., Th.,* 2 *to* 4. Assistant Professor LAKE.
9. Free-hand Drawing. *M., W., F.,* 2 *to* 4. Assistant Professor LAKE.
10. Manual Training Seminary. *Hours to be arranged.* Professors PHILLIPS, BURCH and LAKE.

PHILOSOPHY

PROFESSOR M'GILVARY

1. History of Morality. *M., Tu., Th., F., at* 9. Two-fifths credit.
2. Leading Modern Thinkers. *M., Tu., Th., F., at* 8. Two-fifths credit.
3. Seminary in Modern Metaphysics. *W., two hours to be arranged.*

HISTORY

PROFESSOR MUNRO, PROFESSOR VAN TYNE OF THE UNIVERSITY OF MICHIGAN, ASSISTANT PROFESSOR COFFIN, ASSISTANT PROFESSOR SELLERY, AND DR. PHILLIPS

1. Medieval History, 395 to 1085. *M., Tu., W., Th., F., at* 9. Two-fifths credit. Assistant Professor SELLERY.
2. Modern European History. *M., Tu., W., Th., at* 11. Two-fifths credit. Assistant Professor COFFIN.
3. History of England. *Tu., Th., at* 10; *a third hour to be arranged.* One-fifth credit. Dr. PHILLIPS.
4. American History, 1789 to 1830. *M., Tu., W., Th., at* 9. Two-fifths credit. Professor VAN TYNE.
5. Medieval Civilization. *M., Tu., W., Th., at* 10. Two-fifths credit. Professor MUNRO.
6. Renaissance in Italy. *M., W., F., at* 11. One-fifth credit. Assistant Professor SELLERY.

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7. The Napoleonic Period, 1799 to 1815. *M., Tu., W., Th., at* 12. Two-fifths credit. Assistant Professor COFFIN.
8. The History of the South, 1815 to 1860. *M., Tu., W., Th., F., at* 11. Two-fifths credit. Dr. PHILLIPS.
9. The American Revolution, 1765 to 1783. *Tu., Th., at* 10; *a third hour to be arranged.* One-fifth credit. Professor VAN TYNE.
10. Seminary in Medieval History. *Th.*, 11 *to* 1. One-fifth credit. Professor MUNRO.
11. Seminary in English Constitutional History. *F.*, 11 *to* 1. One-fifth credit. Assistant Professor COFFIN.
12. Introductory Seminary in European History. *Th.*, 11 *to* 1. One-fifth credit. Assistant Professor SELLERY.
13. Seminary in American History. *M., W., at* 10. One-fifth credit. Dr. PHILLIPS.
14. Methods of History Teaching. *Tu., Th., at* 8. One-fifth credit. Professor MUNRO, assisted by the other members of the department.
15. Historical Conference. *F., at* 10.

POLITICAL ECONOMY

PROFESSOR ELY, DOCTOR JANE ADDAMS OF HULL HOUSE, PROFESSOR URDAHL AT COLORADO COLLEGE, AND PROFESSOR BURCHELL

1. Elements of Economics. *M., Tu., W., Th., F., at* 8. Two-fifths credit. Professor URDAHL.
2. The Trust Movement in Europe. *Tu., W., Th., F., at* 9. Two-fifths credit. Professor URDAHL.
3. The Newer Ideals of Peace. *M., Tu., at* 4, *and a consultation hour.* One-fifth credit. Dr. ADDAMS.
4. History of Economic Thought. *M., Tu., W., Th., at* 10. Two-fifths credit. Professor ELY.
5. Custom and Competition. *M., Tu., W., Th., at* 11. Two-fifths credit. Professor ELY.
6. Financial Institutions. *M., Tu., W., Th., F., at* 11. Two-fifths credit. Professor BURCHELL.
7. Manufacturing Industries. *M., Tu., W., Th., F., at* 12. Two-fifths credit. Professor BURCHELL.

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POLITICAL SCIENCE

PROFESSOR REINSCH AND ASSISTANT PROFESSOR HUBERICH OF LELAND STANFORD JUNIOR UNIVERSITY

1. International Law. *M., Tu., W., Th., at* 8. Two-fifths credit. Professor REINSCH.
2. Civilization and Government of Japan. *M., W., Th., at* 10. One-fifth credit. Professor REINSCH.
3. Graduate Seminar in International Law. *Time to be fixed on consultation.* Professor REINSCH.
4. Government of France. *M., Tu., W., Th., at* 9. Two-fifths credit. Assistant Professor HUBERICH.
5. American Constitutional Law. *M., W., F., at* 11. One-fifth credit. Assistant Professor HUBERICH.
6. Public Lectures. Professor REINSCH.

GREEK

ASSISTANT PROFESSOR LAIRD

1. Elementary Greek. *M., Tu., W., Th., F., at* 8. Two-fifths credit.
2. Homer's Odyssey. *M., Tu., W., Th., F., at* 9. Two-fifths credit.
3. Euripides' *Iphigenia in Tauris;* Sophocles' *Oedipus Rex;* or other plays. *M., Tu., W., Th., F., at* 10. Two-fifths credit.
4. Lectures on Greek Forms and Syntax. *M., W., F., at* 11. One-fifth credit.

LATIN

PROFESSOR FAIRCLOUGH OF LELAND STANFORD JUNIOR UNIVERSITY AND ASSISTANT PROFESSOR SHOWERMAN

1. Life, Works, and Character of Cicero: Teachers' Course. *M., Tu., W., Th., F., at* 8. Two-fifths credit. Assistant Professor SHOWERMAN.
2. Writing Latin. *Tu., W., Th., F., at* 10. Two-fifths credit. Professor FAIRCLOUGH.
3. Pliny and Minucius Felix. *M., W., F., at* 9. One-fifth credit. Assistant Professor SHOWERMAN.
4. Vergil's Aeneid, Book VI. *Tu., W., Th., F., at* 11. Two-fifths credit. Professor FAIRCLOUGH.
5. Historic Sites in Greece and Italy. *Tu., Th., at* 4. One-fifth credit. Assistant Professor SHOWERMAN.
6. Lectures on Latin Literature. *W., F., at* 4. One-fifth credit. Professor FAIRCLOUGH.

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ENGLISH

ASSOCIATE PROFESSOR LATHROP, ASSISTANT PROFESSOR PYRE, DR. BEATTY, AND MR. COOK

1. Freshman English. *M., Tu., W., Th., F.*, 8 *to* 10. Three-fifths credit. Mr. COOK.
2. Advanced Composition. *M., Tu., W., Th., F., at* 8. Two-fifths credit. Dr. BEATTY.
3. The Teaching of Rhetoric and Composition with special reference to high schools. *M., W., F., at* 10. One-fifth credit. Dr. BEATTY.
4. General Survey of English Literature. *M., Tu., W., Th., F.*, 10 *to* 12. Three-fifths credit. Assistant Professor PYRE.
5. Versification: The Theory of Metre. *Tu.*, 2 *to* 4. One-fifth credit. Assistant Professor PYRE.
6. Chaucer. *M., W., F., at* 10. One-fifth credit. Dr. BEATTY.
7. Shakespeare. *M., Tu., W., Th., F., at* 9. Two-fifths credit. Associate Professor LATHROP.
8. Types of Modern Prose Fiction. *M., Tu., W., Th., F., at* 8. Two-fifths credit. Associate Professor LATHROP.
9. Poets of the Latter Half of the Nineteenth Century. *M., W., F., at* 12. One-fifth credit. Mr. COOK.
10. Readings from Modern English Poetry. *Th., at* 5. Assistant Professor PYRE.

RHETORIC AND ORATORY

ASSISTANT PROFESSOR LYMAN

1. The Forms of Public Address. *M., Tu., W., Th., F., at* 9. Two-fifths credit.
2. Oratory, Extempore Speaking and Debate. *M., W., F., at* 8. One-fifth credit.
3. Interpretative Reading. *M., W., F., at* 10. One-fifth credit.

GERMAN

PROFESSOR HOHLFELD, PROFESSOR VOSS, ASSISTANT PROFESSOR ROEDDER, DR. MEISNEST, MR. LEHMANN, AND MR. PURIN

1. Beginners' German. *M., Tu., W., Th., F.*, 8 *to* 10. Four-fifths credit. Mr. PURIN.
2. Elementary German. *M., Tu., W., Th., F.*, 10 *to* 12. Four-fifths credit. Mr. LEHMANN.
3. Conversation. *M., Tu., W., Th., F., at* 10. One-fifth credit. Dr. MEISNEST.

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4. Composition and Grammar Review. *M.*, *W.*, *Th.*, *F.*, *at* 11. Two-fifths credit. Professor Voss.
5. Classical Literature. *Tu.*, *W.*, *Th.*, *F.*, *at* 8. Two-fifths credit. Professor HOHLFELD.
6. Scientific Reading. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. Two-fifths credit. Dr. MEISNEST.
7. Advanced Historical Prose. *M.*, *W.*, *Th.*, *F.*, *at* 9. Two-fifths credit. Assistant Professor ROEDDER.
8. Advanced Practice in Writing and Speaking German. *M.*, *W.*, *F.*, *at* 11. One-fifth credit. Assistant Professor ROEDDER.
9. Teachers' Course. *M.*, *W.*, *F.*, *at* 10. One-fifth credit. Professor Voss.
10. Introduction to the Historical Study of German. *M.*, *W.*, *F.*, *at* 8. One-fifth credit. Assistant Professor ROEDDER.
11. Goethe's Faust. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. Two-fifths credit. Dr. MEISNEST.
12. History of the Modern German Drama. *M.*, *W.*, *F.*, *at* 9. One or two-fifths credit, according to the amount of reading. Professor HOHLFELD.
13. Gothic or Old High German. *Tu.*, *Th.*, *at* 10. One-fifth credit. Assistant Professor ROEDDER.
14. Philological Proseminary. *Three hours a week.* One or two-fifths credit. Professor Voss.
15. Seminary in German Literature. *M.*, *W.*, 11 *to* 12:30. One or two-fifths credit, according to the amount of work done. Professor HOHLFELD.
16. Research. Professors HOHLFELD, Voss and ROEDDER.

The *Germanistische Gesellschaft*, an organization of students and instructors interested in the study of German life, language, and literature, will meet one evening each week. The programs will consist of German lectures, music, singing, and social intercourse.

In addition to the lectures at the meetings of the Gesellschaft, there will be a number of public lectures in English on German subjects of general interest.

ROMANCE LANGUAGES

PROFESSOR SMITH AND ASSOCIATE PROFESSOR GIESE

FRENCH

1. Elementary French. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 8 *to* 10. Four-fifths credit. Professor SMITH.

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2. French Literature of the Seventeenth Century. *M., Tu., W., Th., F., at* 10. Two-fifths credit. Associate Professor GIESE.
3. Old French. *Four hours per week.* Two-fifths credit. Professor SMITH.
4. Research. Professors SMITH and GIESE.

SPANISH

5. Elementary Course. *M., W., F., at* 8 *and M., Tu., W., Th., F., at* 9. Three-fifths credit. Associate Professor GIESE.

ITALIAN

6. Elementary Course. *M., W., F., at* 8 *and M., Tu., W., Th., F., at* 9.. Three-fifths credit.

MATHEMATICS

PROFESSOR SLICHTER, ASSISTANT PROFESSOR BLISS OF PRINCETON UNIVERSITY, AND PROFESSOR WILLIAMS OF THE PLATTEVILLE NORMAL SCHOOL

1. Algebra. *M., Tu., W., Th., F., at* 10. Two-fifths credit. Professor SLICHTER.
2. Solid Geometry. *M., Tu., W., Th., F., at* 12. Professor WILLIAMS.
3. Plane Trigonometry and Logarithms. *M., Tu., W., Th., F., at* 9. Two-fifths credit. Assistant Professor BLISS.
4. Analytic Geometry. *M., Tu., W., Th., F., at* 10. Two-fifths credit. Professor WILLIAMS.
5. Calculus. *M., Tu., W., Th., F., at* 11. Two-fifths credit. Professor WILLIAMS.
6. Graphic Methods and Practical Calculation. *M., W., and alternate Fridays at* 8. One-fifth credit. Professor SLICHTER.
7. Theory of Complex Numbers and Algebraic Equations of one Variable. *Tu., Th., and alternate Fridays at* 8. One-fifth credit. Professor SLICHTER.
8. History of Mathematics. *Tu., Th., and alternate Fridays at* 8. One-fifth credit. Professor SLICHTER.

   Both 7 and 8 cannot be given. The choice will be left to the students.
9. Differential Equations. *M., Tu., W., Th., F., at* 9. Two-fifths credit. Professor SLICHTER.

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10. Advanced Calculus. *Tu., W., Th., F., at* 10. Two-fifths credit. Assistant Professor BLISS.
11. Calculus of Variations. *M., W., F., at* 11. One-fifth credit. Assistant Professor BLISS.
12. Conferences. Professor SLICHTER, *Tu., at* 11; Assistant Professor BLISS, *Th., at* 11.

PHYSICS

PROFESSOR SNOW, PROFESSOR TROWBRIDGE, ASSISTANT PROFESSOR TAYLOR, AND MR. MILLER

1. General Lectures. *M., Tu., W., Th., F., at* 12. Two-fifths credit. Assistant Professor TAYLOR.
2. Introductory Laboratory Practice. *Daily* 8 *to* 1. One-fifth credit for each thirty hours of work performed. Mr. MILLER.
3. Theoretical Physics. *M., Tu., W., Th., F., at* 8. Two-fifths credit. Professor TROWBRIDGE.
4. Advanced Laboratory Practice. *Twenty or thirty hours a week.* One-fifth credit for each thirty hours of work. Professor TROWBRIDGE.
5. Thesis Work. Fifty hours per week will be necessary to complete this course. Professor TROWBRIDGE.
6. Graduate Research. Professors SNOW and TROWBRIDGE.

COURSES WITHOUT UNIVERSITY CREDIT

7. Lectures. *M., Tu., W., Th., F., at* 5. Professor SNOW.
8. Elementary Laboratory Practice. *M., Tu., W., Th., F., S.,* 8 *to* 1. Mr. MILLER.

CHEMISTRY

PROFESSOR DANIELLS, PROFESSOR KAHLENBERG, MR. SHINN AND DR. HUTCHINS

1. General Chemistry. *M., Tu., W., Th., F., at* 11. Three-fifths credit. Professor DANIELLS and Dr. HUTCHINS.
2. Qualitative Analysis. Credit according to the amount of work done. Professor DANIELLS and Mr. SHINN.
3. Quantitative Analysis. Credit according to the amount of work done. Professor DANIELLS and Dr. HUTCHINS.
4. A Course for Teachers of Chemistry. Credit according to the amount of work done. Professor DANIELLS.
5. Physical Chemistry. *M., Tu., W., Th., F., at* 8; Lectures.

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Supplemented by laboratory work two or more hours per day. Four-fifths credit. Professor KAHLENBERG and Mr. SHINN.

6. Advanced Physical Chemistry. Credit according to amount of work done. Professor KAHLENBERG and Mr. SHINN.
7. Research in Physical Chemistry. Professor KAHLENBERG.
8. Chemical Preparations. Credit according to amount of work done. Professor KAHLENBERG and Mr. SHINN.

PHYSICAL GEOGRAPHY

PROFESSOR BRIGHAM

1. Physiography. *M., Tu., W., Th., F., at* 11, with excursions two or three times a week. Two-fifths credit.
2. Physiography of the United States. Lectures, *Tu., Th., at* 12. Excursions two or three times a week. One-fifth credit.
3. Field Work. A one-fifth credit is allowed for a satisfactory written report on all field work not to exceed three trips a week.

ZOOLOGY

ASSISTANT PROFESSOR HOLMES

1. Invertebrate Zoology. Lectures, *M., W., F., at* 8, and three laboratory periods a week. Three-fifths credit.
2. Organic Evolution. *M., W., at* 4. One-fifth credit.
3. Systematic Zoology. *Hours by arrangement.*

ANATOMY

PROFESSOR BARDEEN, DR. ALLEN, AND MR. KLINE

1. Physiological Anatomy. Lectures *M., Tu., W., Th., F., at* 9. Professor BARDEEN.
2. Mammalian Anatomy. *M., Tu., W., Th., F.,* 2 *to* 4. Three-fifths credit. Dr. ALLEN.
3. Human Anatomy. *M., Tu., W., Th., F.,* 9 *to* 5.
4. Modern Laboratory Methods and Scientific Research. *Hours may be arranged by consultation.*
5. Embryology and Experimental Morphology. *M., Tu., W., Th., F.,* 9 *to* 11. Dr. ALLEN.
6. Anatomical Illustrations. *Hours may be arranged by consultation.* Mr. KLINE.
7. Artistic Anatomy.

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BOTANY

PROFESSOR HARPER, ASSISTANT PROFESSOR ALLEN, MR. MARQUETTE, AND MR. REED

1. General Botany. Lectures, *M., Tu., W., Th., F., at* 9. *Laboratory hours on consultation.* Five-fifths credit. Professor HARPER and Mr. MARQUETTE.
2. Algae. *W., Th., F.,* 2 *to* 4. May be taken in connection with course 4, the two together giving three-fifths credit. Professor HARPER and Mr. REED.
3. Fungi. *M., Tu., W.,* 2 *to* 4. Professor HARPER and Mr. REED.
4. Mosses and Ferns. *Hours on consultation.* Professor HARPER and Mr. REED.
5. Morphology of the Flowering Plants. *Two lectures and eight laboratory hours per week.* Two-fifths credit. Assistant Professor ALLEN.
6. Botanical Methods. *Hours on consultation.* Two-fifths credit. Professor HARPER and Mr. MARQUETTE.
7. Native Trees and Shrubs. *Twice a week; hours on consultation.* Assistant Professor ALLEN.
8. Special Physiology of the Flowering Plants. A laboratory course. *Hours on consultation.* Professor HARPER and Mr. REED.
9. The Facts and Theories of Heredity. *Three lectures per week.* One-fifth credit. Professor ALLEN.
10. Physiology of the Cell. *M., Tu., W., Th., F.* Professor HARPER and Assistant Professor ALLEN.

Excursions in connection with courses 1 and 7.

HYGIENE

ASSISTANT PROFESSOR FROST

1. Lectures on Public Health. *Twelve lectures, two each week.* One-fifth credit given to those who do assigned reading and pass examination.

PHYSICAL TRAINING

PROFESSOR ELSOM, MISS MAYHEW AND ASSISTANTS

The University Gymnasium is open to all students of the Summer Session, without additional fees, except a charge of fifty cents for a locker.

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The instruction in gymnastics for men will consist of the following work:

1. Light Gymnastics. *M., W., F., at* 4, *and a fourth hour to be arranged.* Professor ELSOM.
2. Heavy Gymnastics. *Tu., Th., at* 4. Professor ELSOM.
3. Swimming. *Daily classes.* Professor ELSOM.
4. Normal Course. *Tu., Th., S., at* 5. Professor ELSOM.

The instruction in gymnastics for women will be as follows:

5. Normal Course: Theory of Physical Education. *M., W., F.,* 11 *or* 3. One-fifth credit. Miss MAYHEW.
6. General Course in Gymnastics. *Four days a week at* 12 *or* 4. One-fifth credit. Miss MAYHEW.
7. Aesthetic Gymnastics and Fancy Club Swinging. *Four days a week; hour to be arranged.* One-fifth credit. Miss MAYHEW.
8. Classes in Swimming for Women. *M., W., F., at* 5; *Tu., Th., S., at* 11. Professor ELSOM.

THE WISCONSIN SUMMER SCHOOL

The work of the Summer School is consolidated with that of the Summer Session. The courses of study formerly given in the Summer School are included in the Summer Session and are announced under the appropriate departments of study on preceding pages. The terms of admission to the school remain as heretofore, and the fee is the same as that for the Summer Session. The Summer School courses are adapted, as heretofore, to recent high school graduates who intend to enter the University; to University and college students who expect to teach and desire to review the studies which they will be called upon to teach; to teachers who wish to study the principles of teaching and still further prepare themselves in the branches in which they are giving instruction; to principals and superintendents who desire aid to the better understanding of the theory and practice of their work. Persons who intend to take the state examinations for teachers will also find means of completing their preparation.

SUMMER SCHOOL FOR ARTISANS AND APPRENTICES

This school of shop work and laboratory practice has been established for the benefit of machinists, carpenters, or sheet-metal workers; stationary, marine, or locomotive engineers; shop foremen and superintendents; superintendents of waterworks,

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electric light plants, power stations, factories, large office and store buildings in cities, and for young men who wish to qualify themselves for such positions. The session is six weeks in length, being coincident with the Summer Session of the College of Letters and Science. The tuition fee is $15, to which are added small laboratory and shop fees.

SUMMER SCHOOL FOR LIBRARY TRAINING

The Wisconsin Free Library Commission announces the twelfth annual session of the Summer School for Library Training to be held in the Madison Free Library Building from July 16 to September 8, 1906.

For the elementary course there will be no charge for tuition to students who are employed in Wisconsin public libraries. For others the fee is $20. Students are required to register on Saturday, July 14.

The supplementary course of four weeks (August 6 to 31) is open only to those who have completed an elementary course in a Library school of recognized standing. Tuition for the entire course, $15.

For further information address Miss Mary E. Hazeltine, Wisconsin Free Library Commission, Madison, Wisconsin.

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THE GRADUATE SCHOOL

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
JOHN B. PARKINSON, A. M., Vice-President. Professor of Constitional and International Law.

T. S. ADAMS, Ph. D., Assistant Professor of Political Economy.
A. S. ALEXANDER, M. D. C., Professor of Veterinary Science.
C. E. ALLEN, Ph. D., Assistant Professor of Botany.
S. M. BABCOCK, Ph. D., LL. D., Professor of Agricultural Chemistry.
C. R. BARDEEN, M. D., Professor of Anatomy.
M. C. BEEBE, B. S., Associate Professor of Electrical Engineering.
E. A. BIRGE, Ph. D., Sc. D., LL. D., Professor of Zoology.
W. G. BLEYER, Ph. D., Assistant Professor of English.
A. C. L. BROWN, Ph. D., Assistant Professor of English.
STORM BULL, M. E., Professor of Steam Engineering.
D. E. BURCHELL, A. B., Professor of Business Administration.
C. F. BURGESS, E. E., Professor of Applied Electrochemistry.
C. H. BURNSIDE, M. A., Assistant Professor of Mechanics.
W. B. CAIRNS, Ph. D., Assistant Professor of American Literature.
VICTOR COFFIN, Ph. D., Assistant Professor of European History.
J. R. COMMONS, A. M., Professor of Political Economy.
G. C. COMSTOCK, Ph. B., LL. B., Professor of Astronomy.
W. W. DANIELLS, M. S., Sc. D., Professor of Chemistry.
R. E. N. DODGE, M. A., Assistant Professor of English.
*L. W. DOWLING, Ph. D., Assistant Professor of Mathematics.
E. C. ELLIOTT, Ph. D., Associate Professor of Education.
R. T. ELY, Ph. D., LL. D., Professor of Political Economy.
M. B. EVANS, Ph. D., Assistant Professor of German.
E. H. FARRINGTON, M. S., Professor of Dairy Husbandry.
N. M. FENNEMAN, Ph. D., Professor of Geology.
RICHARD FISCHER, Ph. C., Ph. D., Assistant Professor of the Theory and Practice of Pharmacy.
C. R. FISH, Ph. D., Assistant Professor of American History.
*G. C. FISKE, Ph. D., Assistant Professor of Latin.

*On leave of absence for the academic year 1905-06.

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*D. B. FRANKENBURGER, A. M., LL. B., Professor of Rhetoric and Oratory.
J. C. FREEMAN, LL. D., Professor of English Literature.
W. D. FROST, Ph. D., Assistant Professor of Bacteriology.
LUCY M. GAY, B. L., Assistant Professor of Romance Languages.
W. F. GIESE, A. M., Associate Professor of Romance Languages.
E. G. HASTINGS, M. S., Assistant Professor of Agricultural Bacteriology.
R. A. HARPER, Ph. D., Professor of Botany.
W. A. HENRY, D. Agr., D. Sc., Dean of the College of Agriculture and Director of the Agricultural Experiment Station. Professor of Agriculture.
†W. H. HOBBS, Ph. D., Professor of Mineralogy and Petrology.
A. R. HOHLFELD, Ph. D., Professor of German.
S. J. HOLMES, Ph. D., Assistant Professor of Zoology.
F. G. HUBBARD, Ph. D., Professor of the English Language.
G. C. HUMPHREY, B. S., Assistant Professor of Animal Husbandry.
D. C. JACKSON, C. E., Professor of Electrical Engineering.
JOSEPH JASTROW, Ph. D., Professor of Psychology.
LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.
ALEXANDER KERR, A. M., Professor of the Greek Language and Literature.
EDWARD KREMERS, Ph. G., Ph. D., Professor of Pharmaceutical Chemistry.
A. G. LAIRD, Ph. D., Assistant Professor of Ancient Languages.
H. B. LATHROP, A. B., Associate Professor of English Literature.
C. K. LEITH, Ph. D., Professor of Geology.
VICTOR LENHER, Ph. D., Associate Professor of Chemistry.
†W. S. MARSHALL, Ph. D., Associate Professor of Zoology.
E. R. MAURER, B. C. E., Professor of Mechanics.
CHARLES MCCARTHY, Ph. D., Lecturer in Political Science.
E. B. MCGILVARY, Ph. D., Professor of Philosophy.
D. W. MEAD, C. E., Professor of Hydraulic and Sanitary Engineering.
§C. E. MENDENHALL, Ph. D., Professor of Physics.
‡B. H. MEYER, Ph. D., Professor of Political Economy.
W. S. MILLER, M. D., Associate Professor of Anatomy.
H. F. MOORE, M. M. E., Assistant Professor of Mechanics.

*Died February 6, 1906.
†On leave of absence for the academic year 1905-06.
§On leave of absence for the second semester, 1905-06.
‡On leave of absence.

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R. A. MOORE, Professor of Agronomy.
D. C. MUNRO, A. M., Professor of European History.
J. E. OLSON, B. L., Professor of Scandinavian Languages and Literature.
*M. V. O'SHEA, B. L., Professor of the Science and Art of Education.
D. H. OTIS, M. S., Assistant Professor of Animal Nutrition.
E. T. OWEN, Ph. D., Professor of French and Linguistics.
J. F. A. PYRE, Ph. D., Assistant Professor of English Literature.
P. S. REINSCH, Ph. D., Professor of Political Science.
A. W. RICHTER, M. E., Professor of Experimental Engineering.
E. C. L. C. ROEDDER, Ph. D., Assistant Professor of German Philology.
H. L. RUSSELL, Ph. D., Professor of Bacteriology.
E. P. SANDSTEN, Ph. D., Professor of Horticulture.
*W. A. SCOTT, Ph. D., Professor of Political Economy.
G. C. SELLERY, Ph. D., Assistant Professor of History.
G. C. SHAAD, B. S., Assistant Professor of Electrical Engineering.
F. C. SHARP, Ph. D., Professor of Philosophy.
GRANT SHOWERMAN, Ph. D., Assistant Professor of Latin.
J. W. SHUSTER, B. S., Assistant Professor of Electrical Engineering.
E. B. SKINNER, Ph. D., Assistant Professor of Mathematics.
M. S. SLAUGHTER, Ph. D., Professor of Latin.
C. S. SLICHTER, M. S., Professor of Applied Mathematics.
C. F. SMITH, Ph. D., Professor of Greek and Classical Philology.
H. A. SMITH, M. A., Professor of Romance Languages.
L. S. SMITH, C. E., Associate Professor of Topographic and Geodetic Engineering.
W. M. SMITH, A. B., Librarian.
B. W. SNOW, Ph. D., Professor of Physics.
S. E. SPARLING, Ph. D., Assistant Professor of Political Science.
A. H. TAYLOR, B. S., Assistant Professor of Physics.
H. C. TAYLOR, Ph. D., Assistant Professor of Political Economy.
†W. D. TAYLOR, C. E., Professor of Railway Engineering.
H. J. B. THORKELSON, M. E., Assistant Professor of Steam Engineering.
A. W. TRESSLER, A. B., Inspector of Schools.
AUGUSTUS TROWBRIDGE, Ph. D., Professor of Mathematical Physics.
F. E. TURNEAURE, C. E., Dr. Eng., Professor of Engineering.

*On leave of absence for the second semester, 1905-06.
†Resigned February 14, 1906.

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F. J. TURNER, Ph. D., Professor of American History.
*C. A. VAN VELZER, Ph. D., Professor of Mathematics.
E. K. J. H. VOSS, Ph. D., Professor of German Philology.
A. R. WHITSON, B. S., Professor of Soils.
W. H. WILLIAMS, A. B., Professor of Hebrew and Hellenistic Greek.
F. W. WOLL, Ph. D., Associate Professor of Agricultural Chemistry.
A. A. YOUNG, Ph. D., Assistant Professor of Political Economy.

Instructors and Assistants

ALLEN, BENNETT MILLS, Ph. D., Instructor in Anatomy.
ALLEN, FLORENCE ELIZA, M. L., Instructor in Mathematics.
ALLEN, KATHARINE, Ph. D., Instructor in Latin.
BLACKWELDER, ELIOT, A. B., Instructor in Geology.
BODE, BOYD HENRY, Ph. D., Instructor in Philosophy.
BROWN, OLIVER W., A. M., Instructor in Applied Electrochemistry.
CLAWSON, ARTHUR BROOKS, A. B., Assistant in Zoology.
CRAWFORD, DAVID ANDERSON, A. B., Assistant in Anatomy.
DEARBORN, WALTER FENNO, Ph. D., Instructor in Education.
DENNISTON, ROLLIN HENRY, Ph. D., Instructor in Botany.
DOWD, JEROME, M. A., Resident Lecturer in Sociology.
GOODNIGHT, SCOTT HOLLAND, Ph. D., Instructor in German.
HOTCHKISS, WILLIAM OTIS, B. S., Instructor in Geology.
INGERSOLL, LEONARD ROSE, B. S., Instructor in Physics.
KELLY, FREDERICK THOMAS, Ph. D., Instructor in Hebrew and Hellenistic Greek.
KOELKER, WILLIAM F., Ph. D., Instructor in Organic Chemistry.
LORENZ, MAX OTTO, A. B., Instructor in Political Economy.
MCCONACHIE, LAUROS GRANT, Ph. D., Assistant in Political Science.
MCCULLOUGH, FRANCIS MICHAEL, C. E., Instructor in Mechanics.
MCNEIL, ANNE HOLMQUIST, Ph. M., Assistant in Education.
MEISNEST, FREDERICK WILLIAM, Ph. D., Instructor in German.
OLIVE, EDGAR WILLIAM, Ph. D., Lecturer in Botany.
OVERTON, JAMES BERTRAM, Ph. D., Instructor in Botany.
PHILLIPS, ULRICH BONNELL, Ph. D., Instructor in American History.
PROKOSCH, EDUARD, Ph. D., Instructor in German.
STODDART, CHARLES WILLIAM, A. M., Instructor in Soil Chemistry.
THOMPSON, JOHN GIFFIN, A. M., Assistant in Political Economy.
VORHIES, CHARLES TAYLOR, B. S., Assistant in Zoology.
WAGNER, GEORGE, M. A., Instructor in Zoology.
WATSON, JAMES WEBSTER, B. S., Instructor in Electrical Engineering.

*Resigned, to take effect July, 1906.

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THE ADMINISTRATIVE COMMITTEE

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
GEORGE C. COMSTOCK, Ph. B., LL. B., Chairman. Director of the Washburn Observatory and Professor of Astronomy.
STEPHEN M. BABCOCK, Ph. D., Assistant Director of the Agricultural Experiment Station.
EDWARD A. BIRGE, Ph. D., Sc. D., LL. D., Dean of the College of Letters and Science.
CHARLES R. BARDEEN, A. B., M. D., Professor of Anatomy.
CHARLES F. BURGESS, E. E., Secretary. Professor of Applied Electrochemistry.
RICHARD T. ELY, Ph. D., LL. D., Professor of Political Economy.
ALEXANDER R. HOHLFELD, Ph. D., Professor of German.
LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.
EVANDER B. MCGILVARY, Ph. D., Professor of Philosophy.
CHARLES S. SLICHTER, M. S., Professor of Applied Mathematics.
MOSES S. SLAUGHTER, Ph. D., Professor of Latin.
CHARLES F. SMITH, Ph. D., Professor of Greek and Classical Philology.
FREDERIC E. TURNEAURE, C. E., Dr. Eng., Dean of the College of Engineering.
FREDERICK J. TURNER, Ph. D., Professor of American History.

GENERAL STATEMENT

The University of Wisconsin is a part of the system of public instruction provided by the State, but is open to all properly qualified students without regard to state lines. The students of the Graduate School are largely from other educational institutions located in many states, although, as is the case elsewhere, many of them come from the University's own undergraduate departments. It is the aim of the University to offer the opportunities for advanced instruction and research to as wide a constituency as possible. No limitations are placed upon a student's freedom in research and in the expression of his conclusions upon subjects which he is prepared to treat. The University avoids all that is partisan in politics and sectarian in religion, without debarring its members from investigation and activity in any field.

ORGANIZATION

Prior to 1895 the graduate work of the University was conducted by its several departments of instruction without further

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co-operation than is implied in their relations to the University as a whole. The development of this work, however, led to its organization, in 1895, as a Department of Graduate Study, and in 1904 it was advanced to the status of a Graduate School, the administration of which was entrusted to a committee of the University Faculty called the Administrative Committee of the Graduate School. The Chairman of this committee is charged with general supervision of all graduate students, and is the medium of communication between such students and the University administration. The faculty of the Graduate School includes all heads of University departments in which graduate work is offered, and all members of the instructional staff of the University in charge of graduate courses.

AIMS AND METHODS

The Graduate School aims to serve the needs of young men and women of college training who desire a larger and more thorough acquaintance with the scholarship and research of the world than can be obtained in the current undergraduate courses. It seeks to awaken in the minds of capable men and women an appreciation of high scholarship, research, and the advancement of learning, to the end that they may effectively aid, not only in the promulgation of academic instruction, but also in extending the boundaries of knowledge. Although the work of the Graduate School is in large part planned with reference to the needs of those who desire to fit themselves for the higher positions in the work of education, and who as preparation for this work seek to specialize along definite lines, the opportunities of the School are open to others as well.

The University aims to give advanced instruction of a high character in each department of its Graduate School, but the scope, form, and methods of this instruction are determined independently within each department. Lectures, laboratories, and the seminary method are largely employed, and especial emphasis is everywhere laid upon bringing the graduate student into contact with the research problems of his department of study. To this end able students share in the investigative work of their instructors, and are encouraged to acquire the spirit as well as the methods of productive work. Provision has been made by the University for the publication under its auspices of the results of especially meritorious work of this kind, and doctor's theses of more

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than common merit are occasionally thus published. For information on the publications of the University, see the Appendix to this catalogue.

CLUBS AND SOCIETIES

To promote interest in problems of scholarship and investigation, and for training in the presentation of results, numerous voluntary clubs and societies have been established by instructors and students in the Graduate School. Among these are:

THE SCIENCE CLUB,
THE CLASSICAL CLUB,
THE LANGUAGE AND LITERATURE CLUB,
THE ENGLISH CLUB,
THE PHILOSOPHICAL CLUB,
THE GERMAN JOURNAL CLUB,
THE CHEMICAL CLUB,
THE BIOLOGICAL CLUB,
THE MATHEMATICAL CLUB,
THE UNIVERSITY OF WISCONSIN BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.
THE UNIVERSITY OF WISCONSIN SECTION OF THE AMERICAN ELECTROCHEMICAL SOCIETY.

The Graduate Club, while sharing in these purposes, is primarily a social organization for the promotion of acquaintance and good fellowship among graduate students and members of the faculty.

FELLOWSHIPS AND SCHOLARSHIPS

University Fellowships

For the purpose of promoting higher scholarship and research, the Regents of the University have established fourteen University fellowships of $400 each, of which two are especially devoted to Latin and Greek, two to Political Economy, two to History, one to German and one to Sociology. It is stipulated that the holder of the fellowship last named shall do work at the University Settlement in Milwaukee.

The following are the regulations respecting these fellowships:

1. Any fellowship to which the present regulations apply may be held by any graduate of a college of recognized standing or by anyone whose education is equivalent to that represented by a college degree. Those about to take such a degree are eligible as candidates, the regulations applying to the time of entrance upon the duties of the fellowship. Men and women are equally eligible.

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2. Fellowships will be granted upon application only, which should be made upon a special blank form furnished by the Registrar of the University; such application, with accompanying evidence of merit, attainment, and ability, to be in the hands of the President before April 1st of the collegiate year preceding that during which the fellowship is held.

3. All fellowships will be filled each year. Fellows may be reelected for one additional year only.

4. Application must be accompanied by evidence of scholarship, ability and general worthiness; such as theses (whether prepared for this or other purposes), published writings, testimonials from instructors, outline of educational course pursued, special distinctions gained, and the like. Applications for reappointment should contain a full account of the work of the preceding year. Applications, to receive attention, must contain a definite statement of the special studies which the applicant intends to pursue.

5. The fellowships will be assigned to the several departments according to the studies which the fellows intend to pursue.

6. Each fellow shall pursue his studies under the direction of the professor or professors in charge of his special studies. Assignment of Univerity services to the fellows shall be made by the President in consultation with the head of the department to which the fellow has been assigned, and the work assigned may be equivalent to one hour of teaching daily, or the supervision of laboratory work for two hours daily.

7. At a meeting of the Faculty in the month of April, which meeting shall be duly announced as the meeting for the election of fellows, the President shall call upon the several heads of the departments in which applications have been received, to make a statement of the merits of the candidates in their departments. After all such statements have been made, the members of the Faculty will cast their ballots for as many candidates as there are fellows to be elected, and those receiving the highest number of votes (provided that each receive a majority of the votes cast) shall be recommended to the Regents for appointment to fellowships.

Vacancies in fellowships, due to resignation or other cause, may be filled as they occur, at the option of the Faculty.

Honorary Fellowships

The Regents have established honorary fellowships, equal in number to the regular fellowships, and filled in a similar way. They are restricted, however, to persons who have already held academic honors, such as fellowships. No compensation is attached to these positions except the remission of University fees, and no teaching service is required; but to be eligible to an honorary fellowship one must be a graduate of at least one year's standing.

The Gustav Kletzsch Fellowship

Through the generosity of Gustav A. Kletzsch, M. D., of Milwaukee, there was established in 1901 and continued in subsequent years, a fellowship in Bacteriology yielding $400 annually.

Graduate Scholarships

The Regents of the University maintain fourteen graduate scholarships of the value of $225 each. Two of these are desig-

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ated for economic and political science, one for European history, one for American history, and two for engineering. Appointments to these scholarships are made in the same manner as appointments to fellowships, but, by special provision, authority is conferred upon the faculties of Lawrence University, of Ripon College, of Milwaukee Downer College and of Beloit College to nominate anually to the faculty of the University of Wisconsin one member of their respective senior classes as a suitable candidate for a University scholarship. Such candidates, when duly appointed by the Regents of the University, shall be in all respects upon the same footing as other University scholars.

Through the generosity of friends of the University, there have been established the following scholarships, whose annual values fluctuate slightly from year to year but which are approximately as stated below:—

The Henry Gund Graduate Scholarship in the Department of German, of the annual value of $250.

The F. W. Allis Graduate Scholarship in Germanic Philology, of the annual value of $200.

The Henrik Wergeland Graduate Scholarship, of the annual value of $200. Open only to graduate students of Norwegian ancestry.

The Benj. K. Miller Scholarship for Japanese students, amounting to $50 annually for four years.

ADMISSION TO THE GRADUATE SCHOOL

Graduates from four-year courses of study in any approved university or college will be admitted to the Graduate School without examination, but will not be considered as candidates for a higher degree until formal announcement of such candidacy has been made to and approved by the Administrative Committee. Each applicant for admission to the Graduate School should in person present his college diploma to the University Registrar, who will admit him to the University and will furnish a statement of fees to be paid at the Regents' office. This statement serves also as a certificate of enrollment in the Graduate School, and should be presented promptly to the Chairman of the Administrative Committee, at Room 8, University Hall, who will issue to the student an election card for presentation to the several instructors under whom he desires to study. Students already enrolled in the Graduate School should obtain from the Chairman

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of the Administrative Committee an election card at or before the beginning of each semester. (For a statement of fees to be paid in the Graduate School see page 84.)

ASSIGNMENT OF STUDIES

The election card should be presented first to the instructor under whom the student's principal work is to be done, who will advise with regard both to the courses of major study and to the subordinate studies that may be combined advantageously with the major. The studies thus determined will be entered upon the election card, which must be signed by the instructor in charge of the major and endorsed with the approval of each other instructor with whom work is to be taken. The completed card should be submitted in person to the Chairman of the Administrative Committee within ten days after the opening of the semester. The student's registration is not complete until the election card has been thus submitted to and approved by the several officers above named.

Graduate students are invited to confer freely with the Chairman of the Administrative Committee in all matters concerning their relations to the University.

CANDIDACY FOR DEGREES

Candidates for all higher degrees are required to present to the Administrative Committee formal application for admission to candidacy for the proposed degree. Such application should be made at least seven months prior to the date at which the examinations for the degree are to be taken, and may be made, with advantage to the student, at an earlier date.

SECOND DEGREES

Upon the conditions stated below the degree of *Master of Arts* will be conferred upon Bachelors of Arts of the University of Wisconsin, and upon graduates of this and other institutions of similar rank who have pursued courses of study equivalent to those now leading to the degree of B. A. in the University of Wisconsin.

Upon similar conditions the degrees *Master of Science* and *Master of Philosophy* will be conferred upon graduates of the University of Wisconsin who have taken the corresponding baccalaureate degrees.

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1. During a period of at least one academic year the candidate must pursue in residence at the University an approved course of study, consisting of a major subject chosen from among the graduate courses offered by the University, and a minor subject which may be either graduate or undergraduate work. Approximately twice as much time should be given to the major subject as to the minor.

2. Ordinarily the required major and minor courses must severally be taken within a single department of the University, but in special cases the Administrative Committee will authorize a major or minor to be constructed from closely related work in different departments.

3. Candidates for the master's degree who are graduates of the University of Wisconsin may be permitted, by vote of the Administrative Committee, to do one-half of this work *in absentia*.

4. On or before June 1 of the year in which the degree is to be conferred the candidate must file with the Chairman of the Administrative Committee a thesis approved by the instructor under whom his major study has been taken. After the thesis has been submitted, the candidate must sustain an oral examination upon the graduate work offered in support of his candidacy. Subject to the approval of the President of the University, the time and place of this examination will be determined and the examining committee appointed by the Chairman of the Administrative Committee.

5. Upon recommendation of the instructor having charge of the candidate's major subject of study, the Administrative Committee may excuse from the preparation of a master's thesis any graduate of the University whose bachelor's thesis gives sufficient evidence of ability to conduct investigation such as is expected of candidates for the master's degree. Candidates desiring to avail themselves of this privilege must continue their graduate studies in the department in which their undergraduate major lay, and must make application for excuse from the master's thesis not later than November 1 of the academic year in which the degree is sought.

6. Graduate students whose training has not been equivalent to that represented by the baccalaureate degrees of the University of Wisconsin, will be required to devote to their candidacy for the master's degree a longer period than the minimum of one year above described. Such students may be required by the

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Committee to pursue in addition to the required major and minor subjects, studies assigned with view to remedying deficiencies in their preliminary training.

7. Students who during their candidacy for the master's degree are engaged in teaching, or other remunerative employment, will be required to devote to their studies such period longer than one year as may be designated by the Administrative Committee.

Students in Law

Graduates of approved institutions who pursue the course in law at the University, and who, by reason of their superior training, are able to take additional studies advantageously, may receive a second degree at graduation from the College of Law, on condition of having satisfactorily pursued studies in the Graduate School equivalent to five hours a week during two years and on complying with the other required conditions.

Students in Engineering

The degrees of *Civil Engineer*, *Mechanical Engineer*, and *Electrical Engineer* are conferred as second degrees upon Bachelors of Science who have completed the civil, mechanical, and electrical engineering courses respectively, and

(1) Who pursue advanced professional study at the University for one year and present a satisfactory project or thesis; or

(2) Who furnish suitable evidence of three years of professional work, (of which one must have been spent in a position of responsibility), and present a satisfactory thesis.

The University offers its second degrees in engineering to graduates of other institutions of high standing who shall reside at the University and pursue the requisite studies under the immediate direction of the faculty of the Graduate School.

CANDIDACY FOR THE MASTER'S DEGREE, PARTLY IN ABSENTIA

By consent of the departments concerned any person otherwise eligible to candidacy for a second degree who has done satisfactory graduate work during one summer session of the University may be admitted to candidacy for the master's degree upon the following terms:—

During a period of two consecutive years while not in resi-

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dence at the University the candidate must pursue a major study, and during two summer sessions, in addition to the one above named, must pursue at the University work in continuation of, or collateral to, this major; e. g., laboratory or seminary work in the department in which the major is taken.

As some departments of the University do not concede the privilege of candidacy *in absentia*, the applicant for this privilege must arrange in advance with the department concerned, for its approval of the proposed work and must show that he has access to adequate facilities for its prosecution. Continuous supervision by the University can not, in general, be given to work done *in absentia*, and its amount and character must be shown by examination at the University.

THE DOCTOR'S DEGREE

The degree of *Doctor of Philosophy* will be conferred upon successful candidates after not less than three years of graduate study, of which either the first two years or the last year must be spent at this University; but it is not conferred solely as the result of faithful study extending over any prescribed period. Special attainments are required in the case of candidates for this degree, particularly the power of independent investigation, shown by the production of a thesis embodying original research or creative scholarship, presented with a fair degree of literary skill.

The attention of graduate students is called to the following regulations respecting candidacy for the doctor's degree.

1. Candidates for this degree are required to select as a principal line of study some definite department of knowledge, with whose entire extent they must become familiar, in general terms, and with some part of which (the one in which the thesis falls), they must acquire a detailed acquaintance. The group of studies thus contemplated is designated the student's major subject, and it is expected that work upon this subject will cover not less than three years of graduate study. This group of studies may be divided among several instructors, one of whom, designated as in charge of the major, will act as the student's adviser in the selection and arrangements of topics constituting the major, and in the selection of two minor courses of study. Work in the first of these minors will ordinarily extend over a period of two years. At least one of these minors must be taken in a department other

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than that in which the major lies, and no two of the three subjects may be taken in chief part under the same instructor.

2. Not later than November 1 of the academic year in which the doctor's degree is to be taken, each candidate for the degree must submit to the Administrative Committee certificates from the departments of French and German of the University of Wisconsin, showing that he possesses a sufficient reading knowledge of these languages to use them for purposes of research in his major study.

3. On or before the same date, November 1, the candidate must file with the Chairman of the Administrative Committee his formal application to be admitted to candidacy for the doctor's degree. This application must set forth, subject to future verbal amendment, the title of the proposed thesis, and the approval of this title by the instructor in charge of the major. A blank for this purpose will be furnished by the University.

4. Each candidate for the doctor's degree must sustain an oral examination upon his thesis and upon the general work covered by his major and minor subjects, but a special written examination upon the second minor may be substituted for the oral examination upon the recommendation of the instructor in charge.

5. A fair copy of the thesis with an abstract of the same must be submitted to the Administrative Committee three weeks before the final oral examination is held. In exceptional cases, by consent of the Administrative Committee and upon the recommendation of the professor in charge of the major, the candidate for the doctor's degree may be permitted to take the general examination prior to the approval of the thesis, but the degree will not be conferred until the candidate has passed an oral examination upon the special field of his thesis, to be held when the thesis is approved.

6. Subject to the approval of the President of the University, the Chairman of the Administrative Committee will appoint an examining committee, usually composed of four persons, and will designate a time and place for the examination.

7. The successful candidate is required to put his thesis into print and to deposit *one hundred copies* of the same in the University Library. If the thesis is printed in some journal, or as a bulletin, reprints will be accepted for the library, but these must be provided with a special cover and title page in proper thesis form. The diploma may be conferred before the thesis is printed,

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provided a written or typewritten copy bearing the approval of the Administrative Committee is deposited with the University Librarian, and the sum of fifty dollars is deposited with the Secretary of the Regents as a guaranty of subsequent publication. This deposit will be refunded on presentation of the printed copies to the University Librarian.

FEES AND EXPENSES

Graduate students, including those working *in absentia*, pay the same fees as undergraduates in the College of Letters and Science. See Index, under Fees and Expenses.

COURSES FOR GRADUATES

In all of the departments of the University courses are offered for undergraduates and graduates, and in many of them, courses primarily for graduates. These courses are described under the above headings in the departments of study in which they are offered in the College of Letters and Science, the College of Engineering, and the College of Agriculture.

GRADUATE CIRCULAR

The special announcement of the Graduate School for 1906-07, giving detailed information concerning the school, may be obtained upon application to the Registrar of the University.

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DEGREES

CONFERRED ON COMMENCEMENT DAY, 1905

COLLEGE OF LETTERS AND SCIENCE

Bachelor of Arts

Elizabeth Abaly.
Chauncy Abbott, Jr.
Amy Allen.
David King Allen.
Iva Clara Allen.
Rolland Craten Allen.
Ruth Florence Allen.
Rowland Baney Anthony.
Alfred Gilmeiden Arvold.
Frances May Baker.
*Helen Leona Baker.
John Franklin Baker.
Edith Virtue Ballantyne.
George Stanley Barber.
Elizabeth Barnard.
John Summer Barry.
Edwin Ball Bartlett.
*Oscar Hugo Bauer.
Grace May Beaver.
Leslie W. Beers.
Marion Caroline Bell.
Lily Leighty Berg.
Anna Katherine Bernard.
Thomas J. Berto.
David Bogue.
Rudolph Emil Bolte.
Kathryn Isabel Brahany.
William Hobart Breuning.
Leonard Edwin Broenniman.
Elizabeth Catherine Buehler.
Mabel Amy Chinnock.
Vera Marie Christensen.
Arthur John Clark.
Genevieve Elida Cline.
Margaret Ellen Coffin.
Julia Ann Cole.
Esther Rachel Conklin.
Francis Marion Confer.
Eudora Idahlia Cook.
Henry Allen Cook.
John Edgar Coonen.
Cornelia Lida Cooper.
Ralph Corlett.
Herbert Van Cowles.
David Anderson Crawford.
Lester Raymond Creutz.
Ira Brown Cross.
John Eckley Daniells.
Walter Gregory Darling.
*Albert Briggs Dean.
Julia Anna Donley.
Isaac Elliott.
Grace Victoria Ellis.
Howard Harry Faust.
Arthur Oscar Fisher.
Elizabeth Viola Foley.
Albert William Foster.
*Hermann August Frank.
Leora Blanche Fryette.
Litta Maurie Fuller.
David Langdon Fulton.
Harold Llewellyn Geisse.

*Degree conferred since Commencement, 1905.

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George Leland Gilkey.
Charles Gross Gratiot.
Alice Evangeline Green.
Victor Rockwell Griggs.
Hilda Christine Grinde.
Willard Seward Griswold.
Lillian Emilie Haertel.
*Ellen Hammersley.
Charlotte Eva Hannahs.
Dagmar Hansen.
Christian Bernhardus Hardenberg.
Edmund Cecil Harder.
Edna Lucretia Harrison.
Katherine Mary Harvey.
Horatio Bates Hawkins.
Anna Augusta Helmholtz.
Norman Hendrickson.
Robert Townsend Herdegen.
Walter Higgs.
Daniel Webster Hoan.
Albert John Hoffmann.
Alfred Wilhelm Homberger.
Grover Gerhard Huebner.
Marvin Edward Jahr.
*Albert Earl James.
Gerald William Jamieson.
Martha Frances Johnson.
†Una Lone Johnson.
John Thor Johnston.
Albert Henry Johnstone.
Gwendolyn Gaynor Jones
Ida Isabelle Jones.
Marion Burr Jones.
Edward Stanlaw Jordan.
Frank James Katz.
Clara Kemler.
Bess G. Kennedy.
Florence Marie Klahr.
Anna Adeline Krause.
Bruno Lachmund.
*Leon Benedict Lamfrom.
Karen Larsen.
*Clara Alice Lea.
Herbert Frank Lindsay.
Max Loeb.
Augusta Christine Lorch.
William Don MacGraw.
Sadie Lillian McCulloch.
Anne McGoorty.
Thomas Joseph Mahon.
Matilda Helena Manz.
Grace Johnston Martin.
Eliza Evelyn Middleton.
Ruth Pauline Miner.
John James Moffatt.
Ethel Edna Moore.
Jessie Marietta Morse.
*Tillie Eliza Nelson.
George Whittier Neilson.
Cora Miriam Norsman.
Emil Olbrich.
Mary Marguerite Parker.
Forest Lee Parsons.
Henry Olaus Paulson.
*Marshal Hylon Pengra.
Fred Julius Pfeifer.
Carl Frederick Pfund.
Ruth Lincoln Phelan.
Harriet Shumway Pietzsch
James Andrew Playter.
George Scott Pritchard.
John Daniel Purcell.
Edwin Frederick Rathjen.
Walter Clarence Reineking.
Wallace Reiss.
Ellen May Rhoades.
Claudia Bee Rice.
Minnie Margaret Riess.
Althea Tooker Rogers.
Faye Valeria Rogers.

*Degree conferred since Commencement, 1905.
†Died November 19, 1905.

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Illma Margaret Rohr.
Lulu Lillian Runge.
Mabelle Oletta Saemann.
Richard Grover Salter.
Richard August Schmidt.
Ella Schmitt.
Winnie Victoria Schmoyer.
Cecil Everett Schreiber.
Julia Marion Scott.
Martha Erbach Sell.
Frederica Von Trice Shattuck.
Eugenie Elinor Shea.
Oral Jessie Shunk.
Edwin Willis Smythe.
John Henry Sprecher.
Nestor Luverne Stiles.
*Rebecca Stockman.
Florence Daisy Stott.
Ida Elizabeth Strehlow.
Ethel May Strong.
Clara Gertrude Sullivan.
Edna Laura Tarbox.
Lillian Elizabeth Taylor.
*Robert Kirk Thompson
*Elias Isaac Tobekin.
Lina Truckenbrodt.
Eunice Miriam True.
Marion Estella Urquhart.
*May Constance Vaughan.
Elleda Johnson Vea.
Helen Marie Venus.
Rose May Wagner.
Dawn Waite.
†Agnes Louise Walsh.
Grace Wells.
Chauncey Rex Welton.
Willibald Weniger.
Hugo John Wichmann.
Elmer Howard Williams.
Leta May Wilson.
Grace Genevieve Woock.
Emeline Elizabeth Zeiher.

COURSE IN COMMERCE

Arche Berton Braley.
John Greer Carey.
Leo Marshall Cook.
Frank Albert Crocker.
Bernard Eilart Feldkamp.
James Eugene Kennedy.
Ernest Wilber Landt.
Clifford Wilde Mills.
Reuben Julius Neckerman.
Rufus Kellogg Schriber.
Robert Nicholson Sharp.
Louis Howard Turner.
Harry Ellsworth Wheelock
Edwin George Young.

Bachelor of Philosophy

Daisy May Allen.
Paul Bergen.
Amy Angela Bronsky.
*Eleanor Louise Burnett.
Katherine Lee Carey.
Alvin Louis Carlsen.
Henry Christian Hacker.
Mary MacArthur.
William Milne.
Lewis Henry Moulton.
John Lupton Rawson.
Bessie Lucy Rounsevell.

*Degree conferred since Commencement, 1905.
†Died February 9, 1906.

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*Willis Paul Colburn.
Effie Comstock.
Genevieve Mae Eaton.
Helga Maria Ekern.
Edward Erickson.
Helen Elizabeth Fitz-Gerald.
John Le Roy Grindell.
Lilian Sabin.
Samuel Antes Stivers.
Emily Woods Upham.
Selma Marie Vognild.
Ellis Janet Walker.
Robert Carl Zuppke.

Bachelor of Science, Pharmacy Course

Isabell Augusta Holden.
Frank Rabak.

Graduate in Pharmacy

Milledge Arthur Boyce.
George Anschutz Hassall.
Winfield Scott Hess.
Stewart Lindsay.
Raymond Patrick Longfield.
Ernest Richard Lueders.
John George Pasternacki.
Arthur Frederick Sievers.
Henry Charles Thenee.
Edward Frank Ziegeleman.

COLLEGE OF ENGINEERING

Bachelor of Science

GENERAL ENGINEERING COURSE

Ernst Borchert, Jr.
Eyvind Hagerup Bull.
Lancaster Demorest Burling.
Ralph Thurman Craigo.
Harry Gardner.
Ray Lyton Hankinson.
Walter Daniel Morgan.
*Paul Bullen Rogers.
Walter Percy Sawyer.
Frank James Sherron.
Harold Kenneth Weld.

CIVIL ENGINEERING COURSE

Aden Wright Andrews.
Leland Rella Baich.
John Berg.
Bernard Conrad Brennan.
William Edwin Brown.
Thomas James Burke.
Louis Andrew Burns.
Royden Jonas Coon.
Forbes Bismark Cronk.
Thomas Joseph Irving.
William Nelson Jones.
Edward Matthew Kayser.
Clarence Melrose Larson.
Franklin Harvey Mann.
Adolph Frederick Meyer.
Edwin Gray Orbert.
Reuben Sylvester Peotter.
Frederick Andrew Potts.

*Degree conferred since Commencement, 1905.

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Robert Franklin Ewald.
Donald Patton Falconer.
Howard Babcock Gates.
Solon Gold.
Guy Alexander Graham.
George Henry Haley.
Lloyd Ralph Harlacher.
Charles Van Emburg Hopper.
Sylvester Schattschneider.
Harry J. Seyton.
Edward Frederick Sinz.
George Louis Thon.
William Fred Tubesing.
Roscoe George Walter.
Ralph Harper Whinery.

MECHANICAL ENGINEERING COURSE

Bernhard Fred Anger.
Joseph Robert Smith Blaine.
Albert Frederick Blossey.
John Edson Boynton.
Earle Smead Burnett.
Frederick Harry Dorner.
Chester Arthur Hoefer.
Elmer George Hoefer.
Ernest R. Jacobs.
Albert Larsen.
Daniel Lewy.
Harold St. Clair Macmillan.
Frank Henry McWethy.
Arthur Herbert Miller.
Patrick William Morrissey.
Carl Sweetland Reed.
Walter Hawley Richardson.
Charles Mackey Rood.
Francis Benjamin Rowley.
John Raymond Smith.
Albert Wilkinson Vinson.
Major Earl Wharry.
William Sprague Wheeler.

ELECTRICAL ENGINEERING COURSE

Philip Sheridan Biegler.
Edgar James Bolles.
Charles Boone.
Charles Elmer Brenton.
James Felix Casserly.
Nicholas John Conrad.
William Riley Harvey.
Charles Marius Haugan.
Walter Richard Heidemann.
Arthur William Helmholtz.
Arthur Edmund Helzer.
Ray Stevens Hoyt.
Herbert Stark Inbusch.
Walter Henry Inbusch.
Richard Jones.
Vincent E. McMullen.
Edward Snetting Moles.
Roy Cummings Muir.
Harry Marinius Olson.
Willis Drummond Perkins.
Charles Summer Peters.
John Reese Price.
Albert George Ramstad.
Leverett Ernest Rice.
Ray Fisk Robinson.
George Albrecht Rodenbaeck.
William Robert Schmidley.
William Frederick Schmidt.
George Matthews Simmons.
George Dempster Swan.
Paul Boynton Turner.
Oswal Olson Wagle.
Ray Taber Wagner.
Charles Donald Willison.
Harry Eugene Wulfing.

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APPLIED ELECTROCHEMISTRY COURSE

Charles Andrew Hansen.
Clarence Peter Hatter.
Edward Ray.

COLLEGE OF AGRICULTURE

Bachelor of Science

Arnon Taylor Henry.
John Demoss Jarvis.
Edward Richard Jones.
Martin Nelson.
Perry Calvin Ranney.
Ray Roland Schwartz.
Guillermo Frederico Terrazas.
David Orrin Thompson.
Otto Louis Uehling.
Allgot Wallin.

COLLEGE OF LAW

Bachelor of Laws

Hamlet Joseph Barry.
Arthur Frederick Belitz.
Ernest Oscar Best.
Alonzo Cook Boyle.
Robert Crandall Bulkely.
Ray Willis Clarke.
Henry Fayette Carpenter.
Alexander Oscar Corstvet.
John Mathew Detling.
Henry Edward Foelske.
Julius Paul Frank.
John Henry Franzke.
Charles Rollin Freeman.
Harry Irving Gardner.
Charles Hesler Gilman.
John Lyman Gleason.
John William Hagenah.
William George Hamilton.
Charles Edward Hammersley.
Fred Voelchert Heinemann.
Jesse Edward Higbee.
Oscar Reeves Hopewell.
Lynn Dole Jaseph.
Alexander Kasberg.
Charles John Kunny.
Stephen James Leahy.
Thomas Edward Leahy.
Lawson Ellsworth Lurvey.
Charles Erastus McLees.
Eben Roger Minahan.
John Edward O'Brien.
Lloyd Winston Pullen.
Adolph Herman Roethke.
Chester Garfield Rogers.
Frank Horton Rogers.
Earl Brown Rose.
Eugene Melvyn Runyard.
Frank Byron Sargent.
William Frank Schanen.
Edgar Edmund Spiering.
Christian Steinmetz.
Ole Andrew Stolen.
Charles Harry Stone.
William Wallace Storms.
James E. Thomas.
Rodger Murphy Trump.
Waldemar Carl Wehe.
Frank Edward Yates.

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SCHOOL OF MUSIC

Graduate in Music

Emma Marie Blum.
Nellie Burmeister.
Anna Helen Hatleberg.
Stella Mabel Lang.
Bessie Lavin.
Almyra Belle Lounsbury.
Marguerite Louise McLean.
Eleanor Purcell.
†Grace Sanderson.
Gertrude Adelaide Smith.
Estella Marie Starks.
Maud Lunette Stephens.
Bertha May Taylor.

HIGHER DEGREES

Master of Arts

Martin Fuller Angell, B. S. (University of Wisconsin), in Physics and Mathematics.

(Thesis requirement satisfied by baccalaureate thesis of 1902.)

Raymond Calvin Benner, B. S. (University of Minnesota), in Chemistry and Geology.

THESIS: The volatilization of chromium trioxide.

Edward Sherwood Bishop, B. L. (University of Wisconsin), in Physics and Mathematics.

(Thesis requirement satisfied by baccalaureate thesis of 1903.)

Solon Justus Buck, B. A. (University of Wisconsin), in History and Political Science.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

Frank Tracy Carlton, M. E. (Case School of Applied Science), in Political Economy and Political Science.

THESIS: The labor union of today.

Alice Emily Chamberlain, B. L. (University of Wisconsin), in American History and European History.

(Thesis requirement satisfied by baccalaureate thesis of 1902.)

*George Victor Clum, B. A. (Ohio State University), in History.

THESIS: The relations of Vermont to England during the Revelution.

*Harold Everett Eggers, B. S. (University of Wisconsin), in Physical Chemistry.

(Thesis requirement satisfied by baccalaureate thesis of of 1903.)

*Degree conferred since Commencement, 1905.
†Died February 23, 1906.

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Berndt Severin Hale, B. A. (University of Wisconsin), in German and French Literature.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

Joseph Gerard Holty, B. S. (University of Wisconsin), in Physical Chemistry and Organic Chemistry.

THESIS: Solubility and specific rotatory power of carbohydrates and certain organic acids and bases in pyridine and other solvents.

Carl Frederick Huth, B. A. (University of Wisconsin), in European History and Political Science.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

Frances Sophia Courtney James, B. A. (University of Wisconsin), in English and Sociology.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

Francis Baker Laney, B. S. (Drury), in Geology and Chemistry.

THESIS: A report on the building and ornamental stones of North Carolina.

*Peter Cornelius Langemo, B. L. (University of Wisconsin), in Political Economy.

THESIS: Federal expenditures of the United States from 1878 to 1903.

Essie Leona Frederica McCutcheon, B. A. (Toronto University), in Greek and Latin.

THESIS: Variation in case constructions in Herodotus, Books VII and VIII.

Alonzo Simpson McDaniel, B. A. (Wabash College), in Physical Chemistry and Organic Chemistry.

THESIS: Differences of potential between manganese and lead peroxides in various aqueous and non-aqueous solutions.

Ralph Benjamin Macnish, B. L. (University of Wisconsin), in French and Italian.

(Thesis requirement satisfied by baccalaureate thesis of 1900.)

Frederick Alexander Manchester, B. A. (University of Wisconsin), English and French.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

*Degree conferred since Commencement, 1905.

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Victor Grant Marquissee, B. A. (University of Wisconsin), in Political Science and Political Economy.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

Joseph Howard Mathews, B. S. (University of Wisconsin), in Physical Chemistry and Applied Electrochemistry.

THESIS: On the relation between specific inductive capacity, electrolytic conduction, and chemical activity of certain liquids.

*Jenny Hughes Morrill, B. L. (University of Tennessee), in History.

THESIS: The settlement of Alabama, 1820-1830.

*Goro Nakayama, Graduate (Tokio Higher Commercial School), in Political Economy.

THESIS: The development of the merchant marine of Japan.

Arthur Louis Nehls, B. S. (Northwestern University), in Physical Chemistry and Mathematics.

THESIS: On the differences of potential between a series of cadmium-tin alloys against solutions of lithium chloride in various solvents.

Adolph Pfund, B. A. (University of Wisconsin), in German Literature and German Philology.

(Thesis requirement satisfied by baccalaureate thesis of 1903.)

Amy Anna Robinson, B. A. (University of Wisconsin), in German Literature and French Literature.

(Thesis requirement satisfied by baccalaureate thesis of 1904.)

Helen Sherman, B. S. (University of Wisconsin), in Botany and Chemistry.

THESIS: Structure and development of the blepharoplast in Zamia.

Charles Harry Stone, B. L. (University of Wisconsin), in Political Economy and Statistics.

(Thesis requirement satisfied by baccalaureate thesis of 1903.)

Master of Science

John Michels, B. S. Agr. (University of Wisconsin), in Agricultural Bacteriology and Animal Husbandry.

THESIS: A study of the development of lactic acid bacteria in milk serum in their relation to the production of butter flavor.

*Degree conferred since Commencement, 1905.

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Civil Engineer

Clarence Eugene Abbott, B. S. (University of Wisconsin).
THESIS: The ore deposits of the Ely trough, Ely, Minnesota.

James C. Hain, B. S. (University of Wisconsin).
THESIS: Disintegration of Portland cement briquettes by oil, and experiments to prevent it.

Osmund Marcellus Jorstad, B. S. (University of Wisconsin), in Railroad Engineering and Electrical Installations.
THESIS: Valuation of Minnesota railroads by the stock and bond and net income methods for a period of five years, ending June 30, 1905.

Ernest Anthony Moritz, B. S. (University of Wisconsin), in Structural Engineering and Electromagnetism.
THESIS: Tests of reinforced concrete beams.

Mechanical Engineer

Lemuel Morris Hancock, B. M. E. (University of Wisconsin).
THESIS: The examination of a hydro-electric power transmission scheme.

Arthur Joseph Hoskin, B. M. E. (University of Wisconsin).
THESIS: The Leyden coal mine.

Doctor of Philosophy

James Duff Barnett, B. A. (College of Emporia), in Political Science, History, and Political Economy.
THESIS: The essential machinery of the central executive government of Wisconsin, 1836 to 1904.

*Robert Carlton Clark, M. A. (University of Texas), in History.
THESIS: The beginnings of Texas, 1684-1718.

*John Fred Haussmann, M. A. (University of Wisconsin), in German Philology.
THESIS: Sprache und Stil des jungen Herder.

Edgar Burton Hutchins, M. S. (University of Wisconsin), in Chemistry, Physical Chemistry, and Mineralogy.
THESIS: A contribution to the chemistry of the tellurates.

Scott Holland Goodnight, M. A. (Eureka College), in German Literature, German Philology, and French Literature.
THESIS: German literature in American magazines prior to 1840.

*Leonard Rose Ingersoll, B. S. (Colorado College) in Physics.
THESIS: On the Faraday and Kerr effects in the infra-red spectrum.

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*Degree conferred since Commencement, 1905.

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Bentaro Kamiyama, Graduate of the Chinzei Gakkwan, in Economics, Sociology, and Political Science.
THESIS: Railway transportation in Japan.

William Vipond Pooley, B. A. (University of Illinois), in American History, European History, and Political Science.
THESIS: The settlement of Illinois from 1830 to 1848.

Charles Newton Smiley, M. A. (Harvard University), in Latin, Greek, and Comparative Philology.
THESIS: Latinitas: concerning the Stoic theory of style.

Oliver Patterson Watts, M. A. (Bowdoin College), in Applied Electrochemistry, Physical Chemistry, and Organic Chemistry.
THESIS: An investigation of the borides and the silicides.

HONORARY DEGREE

Doctor of Laws

John Bascom,
President of the University of Wisconsin, 1874-1887.

John B. Cassoday,
Chief Justice of the Supreme Court of Wisconsin.

Roujet DeLisle Marshall,
Associate Justice of the Supreme Court of Wisconsin.

Carl Schurz,
Publicist; Secretary of the Interior, 1877-1881.

Werner Spalteholz,
Professor of Anatomy at the University of Leipzig.

HONORS IN SPECIAL STUDIES

Rolland Craten Allen, in Geology.
THESIS: A geologic and physiographic sketch of the Animikie iron-bearing district, Ontario.

John Edson Boynton, in Mechanical Engineering.
THESIS: The flow of steam through nozzles.

Earle Smead Burnett, in Mechanical Engineering.
THESIS: The specific heats of fluids as functions of temperature and pressure.

David Anderson Crawford, in Anatomy.
THESIS: The mesenteries of the common mud-turtle (Chrysenmys marginata).

Ira Brown Cross, in Political Economy.
THESIS: Co-operative distribution in the United States.

Ray Lyton Hankinson, in Materials of Construction.
THESIS: An investigation relative to the fineness of Portland cement.

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Edmund Cecil Harder, in Geology.

THESIS: The joint system in the rocks of southwestern Wisconsin and its relation to the drainage network.

Horatio Bates Hawkins, in Political Science.

THESIS: The commercial relations between mother country and colony.

Anna Augusta Helmholz, in English Literature.

THESIS: The dramatic criticism of Samuel Taylor Coleridge with reference to the influence of August Wilhelm von Schlegel.

Arthur William Helmholtz, in Electrical Engineering.

THESIS: Contact resistances of some metals and their oxides.

Elmer George Hoefer, in Mechanical Engineering.

THESIS: The flow of steam through nozzles.

Alfred Wilhelm Homberger, in Chemistry.

THESIS: The quantitative estimation of tellurium.

Ray Stevens Hoyt, in Electrical Engineering.

THESIS: Contact resistances of some metals and their oxides.

Grover Gerhard Huebner, in Political Economy.

THESIS: Statistical aspects of the strike.

Vincent E. McMullen, in Electrical Engineering.

THESIS: A study of the performance of a gasoline engine.

Reuben Sylvester Peotter, in Civil Engineering.

THESIS: Investigations for storage reservoirs on the upper reaches of the Du Lievre river, Quebec, with a general treatise on the water power of that river.

Ella Schmidt, in German.

THESIS: Freytag as a literary critic.

Martha Erbach Sell, in European History.

THESIS: Life in Nuremberg in the later middle ages.

Oswal Olson Wagle, in Electrical Engineering.

THESIS: A study of the performance of a gasoline engine.

Elmer Howard Williams, in Physics.

THESIS: Determination of inductance in absolute measure.

Leta May Wilson, in Latin.

THESIS: Certain popular elements in the Roman satirists.

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SUMMARY OF GRADUATES

		1905.
Number of first degrees granted, 1854-1905.....	5846	411
Present Courses:		
Courses leading to the Degree of Bachelor of Arts, including Course in Commerce, 31, 1905	374	198
Course for Normal School Graduates, 1898-1905	181	25
Civil Engineering Course, 1873-1905.....	242	33
Mechanical Engineering Course, 1876-1905....	189	23
Electrical Engineering Course, 1892-1905.....	208	35
Applied Electrochemistry Course, 1903-1905...	9	3
General Engineering Course, 1901-1905.....	20	11
Law Course, 1869-1905.....	1645	48
Pharmacy Course, 1884-1905.....	248	12
Course in Agriculture, 1878-1905.....	41	10
School of Music, 1898-1905.....	59	13
Courses discontinued:		
Ancient Classical Course, 1854-1903.....	470	
Modern Classical Course, 1876-1903.....	547	
English Course, 1887-1903.....	458	
Civic Historical Course, 1893-1903.....	383	
General Science Course, 1886-1903.....	722	
School of Commerce (B.L., 8; B.S., 1), 1902-1903	9	
Normal Course, 1865-1868.....	25	
Metallurgical Engineering Course, 1876-1896...	16	
Higher Degrees on Examination, 1875-1905.....	409	44
Masters, 1879-1905.....	263	28
Engineers, 1875-1905.....	67	6
Doctors of Philosophy, 1892-1905.....	79	10

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STUDENTS

GRADUATES

Fellows and Scholars

Ambler, Charles Henry, *St. Marys, W. Va.*
M. A., University of West Virginia, Scholar in American History.

Andrews, John Bertram, *South Wayne.*
M. A., Dartmouth College, Honorary Fellow in Economics.

Brandt, Joseph Granger, *Allen Grove.*
Ph. B., Lawrence University, Scholar in Latin.

Burdick, Lawrence Wyle, *Albion.*
B. A., University of Missouri, Scholar in Greek.

Burnett, Earle Smead, *River Falls.*
B. S. in M. E., University of Wisconsin, Scholar in Mechanical Engineering.

Carlton, Frank Tracy, *Toledo, O.*
M. A., University of Wisconsin, Honorary Fellow in Political Economy.

Conger, John Leonard, *Madison.*
M. A., University of Michigan, Fellow in American History.

Coulter, John Lee, *Grand Forks, N. D.*
M. A., University of North Dakota, Fellow in Political Economy.

Cross, Ira Brown, *Madison.*
B. A., University of Wisconsin, Scholar in Political Economy.

Engle, Simon Gingrich, *Monticello, Ind.*
B. A., Indiana University, Scholar in Engineering.

Filbey, Edward Joseph, *Appleton.*
B. A., University of Wisconsin, Fellow in Greek.

Haffner, Metta Wilhelmine, *Sturgis, Mich.*
B. S., University of Michigan, F. W. Allis Graduate Scholarship in German Philology.

Haney, Lewis Henry, *Normal, Ill.*
M. A., Dartmouth College, Honorary Fellow in Political Economy.

Hardenberg, Christiaan Bernhardus, *Madison.*
B. A., University of Wisconsin, Scholar in Biology.

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Harder, Edmund Cecil, *Milwaukee.*
B. A., University of Wisconsin, Scholar in Geology.

Hawkins, Horatio Bates, *San Francisco, Cal.*
B. A., University of Wisconsin, Scholar in Political Science.

*Heck, Charles McGee, *Raleigh, N. C.*
M. A., Columbia University, Fellow in Physics.

Helmholtz, Anna Augusta, *Madison.*
B. A., University of Wisconsin, Scholar in English.

Huebner, Grover Gerhard, *Manitowoc.*
B. A., University of Wisconsin, Scholar in Political Economy.

Huth, Carl Frederick, *Milwaukee.*
M. A., University of Wisconsin, Fellow in European History.

Ishizawa, Kyugoro, *Fukushima, Japan.*
M. A., State University of Iowa, Benjamin K. Miller Japanese Scholarship, in Political Economy.

Jenner, Edwin Alexander, *Indianiola, Ia.*
B. S., Simpson College, Fellow in Philosophy.

Johnson, Henry Theodore, *Louisburg, Minn.*
B. S., Highland Park College, Scholar in Mathematics.

Lee, David Russell, *Evanston, Ill.*
M. A., Indiana University, Fellow in Latin.

Lester, Charles Brown, *Providence, R. I.*
M. A., Brown University, Fellow in Political Science.

Manchester, Frederick Alexander, *Richland Center.*
M. A., University of Wisconsin, Fellow in English.

Oswald, Frederick William, Jr., *Brooklyn, N. Y.*
M. A., Cornell University, Fellow in German.

Phelan, Raymond Vincent, *Cleveland, O.*
Ph. B., Western Reserve University, Fellow in Political Economy.

Russell, Harry Union, *West Derry, N. H.*
B. S., New Hampshire College, Scholar in European History.

Sammins, John Langley, *Madison.*
M. S., University of Illinois, Fellow in Chemistry.

Smith, Ernest Bradford, *Madison.*
B. L., University of Wisconsin, Research Scholarship in Political Science.

Sumner, Helen Laura, *Denver, Colo.*
B. A., Wellesley College, Honorary Fellow in Political Economy.

Tobenkin, Elias Isaac, *Madison.*
B. A., University of Wisconsin, Gund Scholarship in German.

*Resigned, October 24, 1905.

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Tormey, Thomas William, *Madison.*
B. S., University of Wisconsin, Gustav L. Kletzsch
M. D., Rush Medical College, Fellow in Bacteriology.
Weinzirl, John, *Albuquerque, N. M.*
M. S., University of Wisconsin, Fellow in Biology.
Wray, Edward, *Janesville.*
B. S. in Applied Electro Chemistry, Scholar in
University of Wisconsin, Applied Electro Chemistry.

Other Graduates

Aasgaard, Johan Arnd, *De Forest.*
B. A., St. Olaf College, History.
Allen, Florence Eliza, *Madison.*
M. L., University of Wisconsin, Mathematics.
Allen, Rolland Craten, *Belleville.*
B. A., University of Wisconsin, Geology.
Allen, Ruth Florence, *Sturgeon Bay.*
B. A., University of Wisconsin, Botany.
Benner, Raymond Calvin, *Sauk Center, Minn.*
M. A., University of Wisconsin, Chemistry.
Blair, Emma Helen, *Madison.*
M. A., Ripon College, Spanish.
Boardman, Eiot, *Salem, Mass.*
B. A., Harvard University, French.
Bogges, Arthur Clinton, *Catlin, Ill.*
B. A., University of Illinois, American History.
Bradley, Marie Merriman, *Portland, Ore.*
B. A., University of Oregon, History.
Breslich, Arthur Louis, *Madison.*
Ph. D., University of Wisconsin, Hebrew.
Briggs, George Wesley, *Madison.*
B. L., University of Wisconsin, Hellenistic Greek.
Brown, Walter Sheldon, *Friendship, N. Y.*
B. S. A., Cornell University, Horticulture.
Buck, Solon Justus, *Berlin.*
M. A., University of Wisconsin, History.
Camp, Anna Rachel, *Chicago, Ill.*
Ph. B., Western Reserve University, Horticulture.
Campbell, Elsa Patterson, *Madison.*
B. A., Barnard College, Agriculture.
Cance, Alexander Edmond, *Shiocton.*
B. A., Macalester College, Education.
Carter, Clarence Edwin, *Jacksonville, Ill.*
B. A., Illinois University, History.

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Clawson, Arthur Brooks, *Dartford.*
B. A., University of Michigan, Zoology.

Commons, Ella Downey, *Madison.*
B. A., Oberlin College, English.

Cool, Charles Dean, *Decatur, Ill.*
M. A., Harvard University, French.

Cooper, Elva, *Milwaukee.*
B. A., University of Wisconsin, Mathematics.

Cowles, Herbert Van, *Madison.*
B. A., University of Wisconsin, Political Economy.

Crawford, Clarence Cory, *Drexel, Mo.*
M. A., University of Kansas, History.

Crawford, David Anderson, *Madison.*
B. A., University of Wisconsin, Anatomy.

Decker, Paul Herman, *La Moille, Ill.*
B. A., Wartburg College, German.

Deibler, Frederick Shipp, *Deputy, Ind.*
M. A., Harvard University, Political Economy.

Dickinson, Thomas Herbert, *Madison.*
M. A., Columbia College, English Literature.

Dinsdale, Tirza Anne, *Appleton.*
B. A., Lawrence University, Hebrew.

Duncan, Mabel Adeline, *Darlington.*
B. L., University of California, History.

Ellbrecht von, Gerhard Otto Frederick, *Copenhagen, Denmark.*
Graduate Copenhagen Polytechnic Institute, Dairying.

Ewald, Robert Franklin, *Madison.*
B. S. in C. E., University of Wisconsin, Civil Engineering.

Fleming, Samuel Henry, *Philadelphia, Pa.*
E. E., Lehigh University, Applied Electro Chemistry.

Ford, Amelia Clewley, *Boston, Mass.*
B. A., Radcliffe College, History.

Fussell, Lewis, *Media, Pa.*
M. S., Swarthmore College, Electrical Engineering.

Gaffin, Charles Harold, *Madison.*
B. L., University of Wisconsin, Political Science.

Gapen, Flora, *Madison.*
B. S., University of Wisconsin, Mathematics.

Gates, Charles Baldwin, *Milwaukee.*
Ph. B., University of Wisconsin, Chemistry.

Grimes, Nathan Cessna, *Madison.*
B. A., University of Michigan, Mathematics.

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Grossman, August, *Madison.*
B. A., Harvard University, Physics.

Haertel, Martin Henry, *Madison.*
Ph. B., University of Chicago, German.

Hall, Edward Bennington, *Madison.*
B. S., Drury College, Geology.

Hancock, Glover Dunn, *Osceola, Mo.*
M. A., William Jewell College, Political Economy.

Hastings, Edwin George, *Madison.*
M. S., University of Wisconsin, Bacteriology.

Hess, Ralph Henry, *Madison.*
M. S., Colorado Agricultural College, Political Economy.

Hilmer, Hermann, *Madison.*
M. A., Columbia University, German.

*Holt, Robert Benton, *Fairbault, Minn.*
B. A., University of Wisconsin, Greek.

Ingersoll, Leonard Rose, *Denver, Colo.*
Ph. D., University of Wisconsin, Physics.

Inouye, Naojiro, *Larima, Japan.*
Graduate of Olaka College of Pharmacy, Pharmaceutical Chemistry.

Jacobsen, Karl Theodore, *Stoughton.*
B. A., Luther College, Greek.

James, Frances Sophia Courtenay, *Eau Claire.*
M. A., University of Wisconsin, English.

Jeffreys, Herbert Castelman, *London, England.*
B. A., University of Oxford, Bacteriology.

Jones, Edward Richard, *Bangor.*
B. S. A., University of Wisconsin, Physical Chemistry, Soil Physics.

Katz, Frank James, *Milwaukee.*
B. A., University of Wisconsin, Geology.

Kemmerer, George Irving, *Clinton Junction.*
B. A., University of Wisconsin, Chemistry.

Kemp, Joseph Allen, *Kempton, Ind.*
B. A., Indiana University, History.

King, Elizabeth Susan, *Neillsville*
M. A., University of Wisconsin, Latin.

King, Leo Hamilton, *Green Bay.*
M. A., Holy Cross College, Education.

Kittle, William, *Madison.*
Ph. B., University of Wisconsin, History.

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Knight, Henry Seymour, *Troy, N. Y.*
B. A., Williams College, Hellenistic Greek.

Krauskopf, Francis Craig, *Maywood, Ill.*
B. A., Indiana University, Inorganic Chemistry.

Lehman, Daniel Acker, *Madison.*
M. A., Western Reserve University, Mathematics.

Lehmann, Gottfried, *Leipzig, Germany.*
Candidat des hoeheren Schulamts, University of Leipzig, German.

Lorenz, Max Otto, *Iowa City, Ia.*
B. A., University of Iowa, Political Economy.

Lutman, Benjamin Franklin, *Joplin, Mo.*
B. A., University of Missouri, Botany.

Marquette, William George, *Watertown.*
B. S., University of Wisconsin, Botany.

McNeil, Anne Holmquist, *Janesville.*
Ph. M., University of Wisconsin, Education.

Merrick, Jessie Bee, *Madison.*
Ph. B., University of Wisconsin, Spanish.

***Miller, Maud Elsa,** *Neenah.*
B. A., University of Wisconsin, Latin.

Moe, Maurice Winter, *Milwaukee.*
B. A., University of Wisconsin, Hebrew.

Moffatt, John James, *Davenport, Ia.*
B. A., University of Wisconsin, History.

Morrill, Jenny Hughes, *Atlanta, Ga.*
M. A., University of Wisconsin, History.

Nakayama, Goro, *Sesayama, Japan.*
Graduate, Tokio Higher Commercial School, Political Economy.

Nelson, Martin, *Viroqua.*
B. S. A., University of Wisconsin, Agriculture.

Nelles, Walter Ralston, *Madison.*
B. A., Harvard University, English.

Niedecken, Evelyn Marie, *Milwaukee.*
B. A., Milwaukee-Downer College, Chemistry of Food Adulteration.

North, Harry Briggs, *Janesville.*
B. S., University of Wisconsin, Chemistry.

Olbrich, Emil, *Harvard, Ill.*
B. A., University of Wisconsin, History.

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Osborne, Mary Patricia, *Madison.*
B. S., University of Wisconsin, History.

Owen, Ray, *Madison.*
B. S. in C. E., University of Wisconsin, Astronomy.

Pease, Raymond Burnette, *Madison.*
M. A., Harvard University, English.

Pengilly, Richard, *Mt. Horeb.*
Ph. B., Lawrence University, History.

Perdue, Rosa Maude, *Madison.*
M. A., University of Wisconsin, History.

Persons, Warren Milton, *Madison.*
B. S., University of Wisconsin, Political Economy.

Phillips, Ruth Mary, *Madison.*
B. A., University of Wisconsin, English.

Purcell, John Daniel, *Waterloo.*
B. A., University of Wisconsin, Chemistry.

Rabak, Frank, *Madison.*
B. S., University of Wisconsin, Chemistry.

Rastall, Benjamin McKie, *Madison.*
M. A., Colorado College, Political Economy.

Rathjen, Edwin Frederick, *Milwaukee.*
B. A., University of Wisconsin, Chemistry.

Reed, George Matthew, *Madison.*
M. A., University of Wisconsin, Botany.

Reed, Miriam Keith, *Madison.*
B. A., University of Wisconsin, Science.

Richards, William Allyn, *Madison.*
B. S. in M. E., University of Wisconsin, Chemistry.

Rowley, Frank Benjamin, *Evansville.*
B. S. in M. E., University of Wisconsin, Gas Engines.

Ruff, Frederick George, *Ft. Atkinson.*
M. A., Northwestern University, German.

Salisbury, Winifred, *Madison.*
B. L., University of Wisconsin, Political Economy.

Sands, Mary Christina, *Milwaukee.*
B. A., University of Wisconsin, Botany.

Schafer, Joseph, *Eugene, Ore.*
M. L., University of Wisconsin, History.

Schlatter, Edward Bunker, *Brooklyn, N. Y.*
M. A., Harvard University, Romance Philology.

Schreiber, Cecil Everett, *Madison.*
B. A., University of Wisconsin, Political Economy.

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Seymour, Arthur Romeyn, *Madison.*
M. L., University of Wisconsin, Spanish.

Shepard, William Henry, *Linden.*
Ph. B., University of Wisconsin, History.

Smith, Edwin Raymond, *Champaign, Ill.*
B. A., University of Illinois, Mathematics.

Spence, Bartholomew John, *Chicago, Ill.*
B. S., Northwestern University, Physics.

Stanton, Margaret Beaumont, *Ames, Ia.*
B. S., Iowa State College, History.

*Suter, Jesse Dwight, *Ames, Ia.*
B. A., University of Wisconsin, Mathematics.

Suydam, Vernon Andrew, *Waupaca.*
B. S., University of Wisconsin, Physics.

Terry, Earle Melvin, *Battle Creek, Mich.*
M. A., University of Wisconsin, Physics.

Thompson, John Griffin, *Kipling, O.*
M. A., University of Chicago, Political Economy.

Tibbals, Charles Austin, Jr., *Ashbury, N. Y.*
B. A., University of Wisconsin, Chemistry.

Ticknor, Elizabeth Goffe, *Madison.*
B. A., University of Wisconsin, History.

Vorhies, Charles Taylor, *Mt. Pleasant, Ia.*
B. S., Iowa Wesleyan University, Zoology.

Welch, Eunice Wallace, *Madison.*
B. A., University of Wisconsin, Home Economics.

Weniger, Wilibald, *Milwaukee.*
B. A., University of Wisconsin, Physics.

Wetzel, Reinhard August, *Madison.*
B. S., University of Wisconsin, Physics.

Wickenden, William Elgin, *Toledo, O.*
B. S., Denison University, Physics.

White, Melvin Johnson, *Plymouth, N. H.*
B. S., New Hampshire College, American History.

Williams, Elmer Howard, *Soldiers Grove.*
B. A., University of Wisconsin, Physics.

Williamson, Charles Clarence, *Salem, O.*
B. A., Western Reserve University, Political Economy.

Wolesensky, Edward, *Crete, Neb.*
B. S., Doane College, Chemistry.

Wood, Norma Curtis, *Madison.*
B. A., University of Wisconsin, German.

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Worthing, Archie Garfield,	*Madison.*
B. A., University of Wisconsin,	Physics.
Yamamoto, Miono,	*Kyoto, Japan.*
Graduate of Kyoto Imperial University,	Political Economy.
Yoshisaka, Heikichi,	*Kobe, Japan.*
M. A., Indiana University,	Physical Chemistry.

—157

UNDERGRADUATES

College of Letters and Science

SENIOR.

Adams, Bessie Eliza,	*Madison.*
Allen, Josephine Holcomb,	*Lake Geneva.*
Ames, Ada Dell,	*Menomonie.*
Anderson, Oren Joseph,	*Newark, O.*
Atwood, Walter Myron,	*Madison.*
Baas, Alexius Henry,	*Madison.*
Bagley, Zillah Julia,	*Madison.*
Baker, John Sydney,	*Osseo.*
Baker, Joseph Henry,	*Madison.*
Barker, Charles Rease,	*Chippewa Falls.*
Barney, Godfrey Waldo,	*Mauston.*
Barrows, Edward Morley,	*Madison.*
Becher, Max Albert,	*Milwaukee.*
Berg, Jettie Emerle,	*Poplar Grove, Ill.*
Berge, Matthew Garland,	*Eau Claire.*
Birge, Anna Grant,	*Madison.*
Bishop, Charles Clyde,	*Dodgeville.*
Bissell, Cora Ethel,	*Madison.*
Blanchard, George Washington,	*Colby.*
Brady, Daniel Leo,	*Mount Hope.*
Brey, Peter Francis,	*Algoma.*
Bridgman, Louis William,	*Madison.*
Bruce, Milton Francis,	*Milwaukee.*
Brush, Jesse Platt,	*Stewartville, Minn.*
Buchanan, Iva Luella,	*Rio.*
Burnham, Marguerite Eleanor,	*Madison.*
Campbell, Robert,	*Gurnee, Ill.*
Case, Florence Dombey,	*West Allis.*
Cass, Lulu Edith,	*Madison.*

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Clifford, Cecil Leslie,	*Madison.*
Cole, Minnie Bruins,	*Madison.*
Corse, Ellen Jessie,	*Racine.*
Crane, Guy Walter,	*Milwaukee.*
Crissey, Merrill Henry,	*Janesville.*
Cunningham, Isabel Margaret,	*Chippewa Falls.*
Curtiss, Mildred Harriet,	*Madison.*
Dahl, Harry Julius,	*Westby.*
Davidson, Mabel Elsie,	*Madison.*
Davis, Bertha Eleanor,	*Madison.*
Dawkins, Corrie Belle,	*Spartanburg, S. C.*
DeLacy, John Byron,	*Viroqua.*
DeLap, Darwin,	*Kansas City, Mo.*
De Lap, Florence May,	*Chicago, Ill.*
Dexter, Elise Forsythe,	*Madison.*
Dietz, Arthur,	*Mayville.*
Distelhorst, Walter Louis William,	*Dorchester.*
Dodd, Minnie Lee,	*Muskogee, Ind. Ter.*
Dodge, Charles Wilson,	*Windsor.*
Dodge, Mary Louise,	*Windsor.*
Dousman, Margaret Elizabeth,	*Milwaukee.*
Draves, Minnie Theresa,	*Milwaukee.*
Dudgeon, Richard Cone,	*Madison.*
Duke, Henry Clay,	*Madison.*
Dunwiddie, Stanley Gray,	*Janesville.*
Durst, May Louise,	*Monroe.*
Dyrud, Mathilda,	*Baraboo.*
Eimer, Edna,	*Milwaukee.*
Evans, Alice Esther,	*Spring Green.*
Evert, Karl,	*Madison.*
Fay, Martha Marion,	*Madison.*
Fenton, Polly,	*Madison.*
Fessler, Edward John,	*Sun Prairie.*
Festerling, Edwin Garfield,	*Sheboygan.*
Findlay, Albion Roy,	*Madison.*
Fisher, Eunice Estella,	*Steward, Ill.*
Fjoslien, Sigrid,	*Clinton.*
Fridd, Blanche,	*Valley City, N. D.*
Fries, Jane Grace,	*Richland Center.*
Gapen, Mildred.	*Madison.*
George, Katherine Ethel,	*Monticello, Ia.*

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Glenz, Emma Louise,	*Madison.*
Godwin, Ethel Isabelle,	*Berlin.*
Gordon, Mabel Jean,	*Waupaca.*
Grant, Goldie Kate,	*Milwaukee.*
Hall, Edgar Albert,	*Omro.*
Hannan, George Francis,	*Milwaukee.*
Harvey, Elizabeth Katherine,	*Racine.*
Hean, Clarence Scott,	*Madison.*
Heinemann, Fred,	*Wausau.*
Herrick, Lucretia Mae,	*Ripon.*
Hetzel, Ralph Dorn,	*Madison.*
Hickisch, Therese Frances,	*La Crosse.*
Holmes, Frederick Lionel,	*Waukau.*
Holthoff, Ella Gertrude,	*Ripon.*
Hopson, Howard Colwell,	*Fort Atkinson.*
Houghton, Grace Adams,	*West Salem.*
Howard, Emmett Budlong,	*Marshalltown, Ia.*
Hueffner, Martin Matthew,	*Racine.*
Hunter, Bernice Drew,	*Ft. Atkinson.*
Hunter, Gertrude Hazel,	*Racine.*
Hutton, Annabel MacGregor,	*Waukesha.*
Ingalls, Edna Jannet,	*Menomonie.*
Jahns, Louise Marie,	*Milwaukee.*
Johnson, Edith,	*Kokomo, Ind.*
Johnson, Francis Ellis,	*Des Moines, Ia.*
Johnson, Ida Petrine,	*West Salem.*
Johnson, Jessie Vera,	*Eau Claire.*
Johnson, Marjorie Daw,	*Madison.*
Jolivette, Hally Delilia Mary,	*La Crosse.*
Kadish, Victor Hugo,	*Milwaukee.*
Ketchpaw, Erma Louise,	*Madison.*
Ketchpaw, Maude Luella,	*Madison.*
Kimball, Euretta Mary,	*Janesville.*
King, Clarence Baker,	*Madison.*
Kissling, Arthur Charles,	*Milwaukee.*
Knowlton, Phillip Arnold,	*Madison.*
Koch, Edna May,	*Fairdale, Ill.*
Krape, William Gorman,	*Freeport, Ill.*
Kremer, Paul Henry,	*Milwaukee.*
Kroehnke, Adalia Laurentine,	*Thiensville.*
Kuhlmann, Charles Byron,	*Wausau.*

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Kussel, Irma Lizette,	*Watertown.*
Lackner, Florence Helen,	*Aurora, Ill.*
Latta, Grace Deborah,	*Antigo.*
Lawson, Laura Lou,	*Madison.*
Loranger, Madge Winifred,	*Ashland.*
Lutman, Benjamin Franklin,	*Joplin, Mo.*
Lyon, Ruth Erema,	*Madison.*
Mac Kenzie, Frederick William,	*Blue Mounds.*
Mac Millian, Maud Ethel Jane,	*Wauwatosa.*
Mapel, John Wallace,	*Milwaukee.*
Martens, Henry Christoph,	*Fond du Lac.*
Mason, Ora Lotta,	*Sharon.*
Maurer, Heinrich,	*Willsbach, Germany.*
McConochie, George Stewart,	*Portage.*
McCormick, Edith Trafton,	*Sparta.*
McKay, Sara Roxey,	*Madison.*
Meadows, James Orley,	*Oconomowoc.*
Miller, Adelaide,	*Chippewa Falls.*
Miltenberger, Robert Edgar,	*Randolph.*
Minch, Katherine Salome,	*Madison.*
Morgan, John Jeremiah,	*Cascade.*
Morse, Nona Troy,	*Nashua, Ia.*
Mowry, Don Ensminger,	*Milwaukee.*
Mulcahy, Max John,	*Madison.*
Mulick, Marion Gray,	*Watertown.*
Munson, Barbara Merrielle,	*Viroqua.*
Newman, Ross Byron,	*Juda.*
Olsen, Laura Marie,	*Eau Claire.*
Orr, Owen Cargill,	*St. Joseph, Mo.*
Osgood, Esse Irene,	*Madison.*
Ott, Edwin,	*Oak Park, Ill.*
Otto, Maxwell Charles,	*Waukesha.*
Patterson, Anna Louisa,	*North Freedom.*
Patterson, Walter Lafayette,	*Baraboo.*
Peckham, George Willams, Jr.,	*Milwaukee.*
Persons, Archie Lee,	*Arkansaw.*
Pettigrew, Bessie,	*Sioux Falls, S. D.*
Pierce, Helen Meroe,	*Madison.*
Poole, De Witt Clinton, Jr.,	*Madison.*
Potter, Herman Monroe,	*Madison.*
Potter, Paul David,	*Madison.*

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Ravn, Agnes,	*Merrill.*
Ray, George Rankin,	*Waukesha.*
Reid, Alice Jane,	*Oconomowoc.*
Remp, Richard William,	*Madison.*
Richards, Clara Alida,	*Madison.*
Richardson, Clarence Lemuel,	*Chippewa Falls.*
Rietow, Florence Georgiana,	*Sheboygan.*
Risley, Guy Franklin,	*Baraboo.*
Roberts, Agnes Ida,	*Milwaukee.*
Roberts, Eck Crippen,	*Madison.*
Rogers, Bertha Harriett,	*Port Byron, Ill.*
Rosenheimer, Alexander Benjamin,	*Schleisingerville.*
Rosenheimer, Newton William,	*Kewaskum.*
Rosenstengel, Helen Alice,	*Madison.*
Rostad, Magdalene,	*Milwaukee.*
Ruggles, Allen Mead,	*Norwich, N. Y.*
Runge, Alma Matilda,	*Madison.*
Ruste, Anne Margarite,	*Charles City, Ia.*
Ryan, Marion Eva,	*Wausau.*
Sanborn, Norman Walker,	*Ashland.*
Sands, Mary Alice,	*Dodgeville.*
Schoephoester, Albert John,	*Reedsburg.*
Schorer, Arno Robert,	*Plymouth.*
Schrage, Jennie Thayer,	*Sheboygan.*
Scott, Fern,	*Sparta.*
Schram, Peter Henry,	*Madison.*
Seamans, Herbert Lyle,	*Springfield, Mo.*
Severin, Henry Herman Paul,	*Milwaukee.*
Sleep, Walter I.,	*Waukesha.*
Smith, Anna Du Pré,	*Madison.*
Smith, Osmore Ray,	*Sparta.*
Southwick, Margaret	*Stevens Point.*
Sprecher, Walter Edmund,	*Independence.*
Starke, Meta Eleanor,	*Milwaukee.*
Steidtmann, Edward,	*Prairie du Sac.*
Stevens, Meda Bee,	*Evansville.*
Stone, Anna Louise,	*Reedsburg.*
Strassburger, Erna Dorothea,	*Cedarburg.*
Stroud, Perry Curtis,	*Portage.*
Sullivan, Kathryn Lucile,	*Adrian, Minn.*
Sutherland, Ella,	*Janesville.*

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Swenson, Mary Waddington,	*Madison.*
Taylor, Lily Ross,	*Madison.*
Terry, Abbie Celina,	*Madison.*
Thomas, Mary Ella,	*Berlin.*
Thursby, Cordelia Claire,	*Madison.*
Thwaites, Fredrik Turville,	*Madison.*
Tirrill, Marie Edith,	*Madison.*
Tormey, Julia Florence,	*Madison.*
Turvill, Helen,	*Madison.*
Twesme, Albert Theodore,	*Blair.*
Van Velzer, Marion,	*Madison.*
Vater, Alma,	*Madison.*
Walsh, William Thomas,	*Dubuque, Ia.*
Washburn, Martha Lucile,	*Sturgeon Bay.*
Watrous, Maude Evangeline,	*Milwaukee.*
White, Rhoda Mabel,	*Madison.*
Whitney, Helen Goldsmith,	*Madison.*
Whittaker, Harold Arthur,	*Oconomowoc.*
Whittier, Rowena Maud,	*Madison.*
Whyte, John,	*Watertown.*
Wile, Raymond Samuel,	*Evansville, Ind.*
Wilke, Ada Dorothy,	*Union Grove,*
Young, Gertrude Stickney,	*Plankington, S. D.*

Course in Commerce

Anderson, Louis Martin,	*Mt. Horeb.*
Arnold, Marshall,	*Peotone, Ill.*
Barrett, William Richard,	*Merrill.*
Bomersheim, John Baptist,	*Milwaukee.*
Collie, Ralph Wall,	*Merrill.*
Conway, Thomas,	*Elroy.*
Emerson, Frank Gilbert,	*Chippewa Falls.*
Gilfillan, William Ray,	*La Crosse.*
Hayes, Joseph Dennis,	*Janesville.*
Hoefs, Marcus Franklin,	*Green Bay.*
Houghton, Hiram Cole, Jr.,	*Red Oak, Ia.*
Hueffner, Frederick William,	*Racine.*
Kinsey, Zebulon Bradley,	*Madison.*
Kuehmsted, Arthur Odin,	*Appleton.*
Lehmann, William Van Vechten,	*Neosho.*
Lindemann, Albert Louis,	*Milwaukee.*

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Nelson, Charles Edward,	*Superior.*
O'Melia, James Henry,	*Rhinelander.*
Peterson, Nels John,	*Marinette.*
Sackett, Edwin Hiram,	*Fond du Lac.*
Slagsvol, Thomas Richard,	*Eau Claire.*
Strong, Arthur,	*Dodgeville.*
Woodward, Milton Lysander,	*Reedsburg.*

Course for Normal School Graduates

Arzberger, Emil Gottfried,	*Helenville.*
Baker, John Earl,	*Eagle.*
Bemis, Florence Irene,	*Oshkosh.*
Bewick, Thomas Lyman,	*Madison.*
Bridgman, Benjamin Williams,	*Darlington.*
Coggeshall, Minnie Juliet,	*River Falls.*
Cole, Adrian H.,	*Rio.*
Davee, Henry A.,	*Chinook, Mont.*
Fadner, Lydia Elizabeth,	*Superior.*
Goebel, Joseph Paul,	*Eden.*
Hagberg, John Bernhard,	*Superior.*
Halsey, Cora Moore,	*Oshkosh.*
Hamilton, Frederic Rutherford,	*Richland Center.*
Henderson, Leonora Louise,	*Cambridge.*
Jones, George James,	*Oconomowoc.*
Karges, Rudolph Andrew,	*Burlington.*
Lerom, Bertha,	*Buxton, N. D.*
Lerom, Hattie Lucene,	*Buxton, N. D.*
Luening, Edwin Garfield,	*Milwaukee,*
Melcher, Henry Alberto,	*Oconomowoc.*
Rodolph, Garth Charles,	*Montfort.*
Seaver, Jessie Victorine,	*Lake Mills.*
Skinrood, Carle Oscar,	*South Wayne.*
Stroebel, Leonard Augustus,	*Barron.*
Sutherland, Margaret,	*Eau Claire.*
Tucker, Agnes Young,	*Madison.*
Verran, Laura Ellen,	*Madison.*
Wagner, Nicholas Bacon,	*Menasha.*
Weiland, Louis Emil,	*Baraboo.*
Whitney, Elizabeth Day,	*Madison.*
Zeidler, Richard,	*Howard Lake, Minn.*
Zoerb, Albert Jerome,	*Algoma.*

—235

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JUNIOR CLASS

Adams, Elsie Louise,	*Dunbar.*
Aldrich, Loyal Blaine,	*Milwaukee.*
Allen, Marion Bradburn,	*Cambridge.*
Anderson, Esther,	*Madison.*
Anderson, Selina Elizabeth,	*Racine.*
Angell, Nellie Nadine,	*Sun Prairie.*
Armstrong, Vermillion,	*Madison.*
Barker, Blanche Jessie,	*Ipswich, S. D.*
Barker, Raymond,	*Racine.*
Barlow, Mildred Lucile,	*Streator, Ill.*
Barrows, Frances Weld,	*Columbus, O.*
Bednarek, Joseph Leon,	*Beaver Dam.*
Besley, Harold Joslyn,	*Waukegan, Ill.*
Binnie, Nora Isabelle,	*Poynette.*
Blackburn, Carolyn Etta,	*Madison.*
Blied, Mathilda Elizabeth,	*Madison.*
Bowen, Rose Andrews,	*Greenwood.*
Breidenbach, Otto Henry,	*Milwaukee.*
Brewer, Robert Kemp,	*Mineral Point.*
Brewster, Harriet Jane,	*Madison.*
Brockway, Lulu Belle,	*Madison.*
Buchanan, Iva Luella,	*Rio.*
Bushnell, Alfred Hanson,	*Lancaster.*
Byrne, Mary Frances,	*Madison.*
Carey, Alice Matilda,	*Madison.*
Cary, Loretto Helen,	*Sioux City, Ia.*
Cary, Walter Eugene,	*Denver, Colo.*
Cawley, Margaret Gray,	*Pipestone, Minn.*
Chave, Georgia Elizabeth,	*Tomahawk.*
Clark, Charles Rollin,	*Carthage, Ill.*
Clark, Floyd Milton,	*Madison.*
Clark, Tilden Ballard,	*Appleton.*
Clarke, Portia,	*Adel, Ia.*
Clough, Ethel Pearl,	*Portage.*
Cogswell, Caroline Duston,	*Madison.*
Collmann, Chester William,	*Madison.*
Comstock, Verna Victorine,	*Milwaukee.*
Cook, Charles Alva Henry,	*Milton Junction.*
Corstvet, Anna Alice,	*Deerfield.*
Dahl, Elnora Ingeborg,	*Westby.*

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Davis, Benjamin Franklin,	*Madison.*
Davidson, Grace Wilhelmina,	*Necedah.*
Douglas, Ella May,	*Winona, Minn.*
Douglass, Anna,	*Postville.*
Douglass, Ruth,	*Postville.*
Drips, Della Gay,	*La Crosse.*
Dunlap, Robert Bancroft,	*Waukesha.*
Dunn, May Vanancia,	*Madison.*
Earl, Florence Corlett,	*Madison.*
Eder, Joseph,	*Milwaukee.*
Edwards, Alma,	*Kansasville.*
Ekern, Ruth Nathalia,	*Madison.*
Ellefson, Clarence Ferdinand,	*Madison.*
Ellefson, Elmer Winter,	*Madison.*
Ellefson, Mabel Selma,	*Madison.*
Elliott, Laura Belle,	*Eau Claire.*
Esch, Fred Henry,	*Manitowoc.*
Eyman, Elmer Vail,	*Evanston, Ill.*
Fay, Helen Armine,	*Madison.*
Ferguson, Martha Luella,	*Milwaukee.*
Fitzgerald, Julia Mary,	*Arcola, Ill.*
Flett, Elizabeth Townsend,	*Racine.*
Foley, Geraldine Hyland,	*Wauwatosa.*
Fox, Bessie Gordon,	*Madison.*
Frankenburger, Margaret,	*Madison.*
Fruit, Clarence Henry,	*La Crosse.*
Fulton, Philip Randall,	*Hudson.*
Garner, Homer Clifford,	*Richland Center.*
Gaynor, Bessie Prudence,	*Grand Rapids.*
Gilfillan, Ella Barbara,	*West Salem.*
Gillard, Eugene Elsworth,	*East Troy.*
Gillett, Charles Mason,	*Superior.*
Gilman, Helen Leonard,	*Madison.*
Goe, Ruth,	*Madison.*
Gray, Harry Leon,	*Mazomanie.*
Greene, Margaret Abby,	*Minot, N. D.*
Grey, Ernest George,	*Milwaukee.*
Grove, Helen Theo,	*Madison.*
Grow, Grace Lillian,	*Neillsville.*
Gugler, Ralph George,	*Milwaukee.*

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Hacker, Emil Frederick, *Arcadia.*
Hall, Charles Norton, *Madison.*
Hall, Lucy, *Watertown.*
Hammersmith, Paul Walter, *Milwaukee.*
Harker, Elva, *Dodgeville.*
Harper, Hugh Allen, *Madison.*
Harris, Helen Louise, *Racine.*
Hastings, Bessie Edna, *Oregon.*
Hayden, Pearl Catherine, *Sun Prairie*
H'Doubler, Frank Todd, *Madison.*
H'Doubler, Pearle Madeliene, *Madison.*
Head, Helen Louise, *Albion.*
Heinrich, Henry, *Madison.*
Hinkle, Alma May Elizabeth, *Madison.*
Hinkley, Cora Case, *Milwaukee.*
Hitchcock, Raymond Royce, *Lake Mills.*
Hobbins, Fanny, *Madison.*
Hobbins, Grace, *Madison.*
Holmes, May Luella, *Evansville.*
Holum, Ruth Caroline, *De Forest.*
Hood, William Frederick, Jr., *Fairchild.*
Hopkins, Mabel Ruth, *Rockford, Ill.*
Hopkins, Sadie Mae, *Fennimore.*
Howe, Helen May, *Ripon.*
Hoyt, James Mitchell, *Evanston, Ill.*
Hurd, Helen Margaret, *Chippewa Falls.*
Inbusch, Charles Edward, *Milwaukee.*
Ives, George, *Ft. Atkinson.*
Janecky, Adolph Rudolph, *Racine.*
Jedney, Eli Severn, *Blair.*
Johnson, Isabel Reid, *Portage.*
Jones, Edwin Converse, *Portage.*
Kaiser, Carl William, *Marshall.*
Keller, Irmgarde, *Janesville.*
Ketchum, Edith Irene, *Madison.*
Kimball, Norman Captive, *Kenosha.*
Kirkpatrick, Woodward Cummings, *Superior.*
Knoelk, Will Charles, *Milwaukee.*
Koenig, Robert Franklin, *Freeport, Ill.*
Kostalek, John Anton, *Milwaukee.*
Krey, August Charles, *Milwaukee.*

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Kuntz, William Henry,	*Poynette.*
Lambeck, Arthur Hugo,	*Milwaukee.*
La Reau, Eva Marie,	*Helena, Mont.*
Larson, Alfred,	*Wausau.*
Larson, Lewis P.,	*Whitehall.*
Leslie, Donald Eugene,	*Clinton, Ia.*
Loft, Genivera Edmunds,	*Greenwood.*
Lundberg, Emma Octavia,	*Rockford, Ill.*
Mãas, Bertha Helen,	*Wauwatosa.*
Mace, Florence Isabel,	*Duluth, Minn.*
MacKowen, Harriett Estella,	*West Allis.*
Macomber, Winifred,	*Tomahawk.*
Madson, Charles Andrew,	*Racine.*
Maurer, Erma Edna,	*Arcadia.*
McClernan, Thomas Joseph,	*Madison.*
McKey, Elizabeth Douglas,	*Janesville.*
McLean, Marguerite Louise,	*Menomonie.*
McMahon, Edward Michael,	*Manitowoc.*
McNutt, Merna Theile,	*Portage.*
Mead, Arlisle Marie,	*Plymouth.*
Menzies, Isabel McGregor,	*Janesville.*
Mentzer, Minnie May,	*Madison.*
Miller, Florence Mosher,	*Rhinelander.*
Minn, Elsie Marcellite,	*Milwaukee.*
Moll, Dorothea Alvyna,	*Madison.*
Morse, Byrrd Pearl,	*Madison.*
Moser, Hildred Daisy,	*Madison.*
Mott, Albert Louis,	*Viroqua.*
Mueller, Erma Voshardt,	*Two Rivers.*
Munroe, Maude Maxwell,	*Baraboo.*
Munson, Matthias,	*Soldiers Grove.*
Nelson, Oliver Otto,	*Madison.*
Newman, Celia Elizabeth,	*Madison.*
Noyes, Miriam,	*Oshkosh.*
O'Keefe, Mary Calista,	*Portage.*
Olin, Mary Estelle,	*Belleville.*
Orvis, Mary Burchard,	*Madison.*
Owen, Mary Elizabeth Hodges,	*Madison.*
Parker, Harry Fletcher,	*Hudson.*
Parker, Marie,	*Fennimore.*
Parsons, Caryl,	*Madison.*

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Pederson, Lillie Josephine,	*Strum.*
Pelton, Edith Louvina,	*Madison.*
Pengra, Stella May,	*Madison.*
Petrie, Rollie Al,	*Mauston.*
Proud, Mary Hannah,	*Madison.*
Purin, Charles Maltador.	*Madison.*
Quarles, Charles Bullen,	*Milwaukee.*
Rabe, Henry Albert,	*Neenah.*
Rankin, Carrie Adele,	*Waukesha.*
Rankin, Mildred Rose,	*Morrisonville, Ill.*
Rau, Belden Brosi,	*Beloit.*
Raymond, Lela Maude,	*Sharon.*
Read, James Burton,	*Lake Geneva.*
Rehfeld, Minnie Elmida,	*Horicon.*
Reinking, Olga Elizabeth,	*Baraboo.*
Richards, Jesse Lawrence,	*Randolph.*
Roberts, Margery,	*Milwaukee.*
Roderick, Dwight Lyman,	*Brodhead.*
Rosholt, Emma Josephine,	*Oconomowoc.*
Rowe, Mae Edith,	*Plymouth.*
Rudoph, Florence Anne,	*Canton, S. D.*
Sanborn, George Allen,	*Madison.*
Sanderson, Katherine Moore,	*Madison.*
Schaus, Irving Peter,	*Milwaukee.*
Schneider, Francis Lee,	*West Salem.*
Schnetzky, Hugo Walter,	*Milwaukee.*
Schorer, Oscar Charles,	*Plymouth.*
Schranck, Valentine Edward,	*Milwaukee.*
Schroeder, Arthur,	*Racine.*
Schubring, Selma Langenhan,	*Madison.*
Scott, Genevieve Allen,	*Lake Geneva.*
Secrist, Horace,	*Madison.*
Seeger, Paul August,	*Milton Junction.*
Seiler, Alexander Walter,	*Madison.*
Seilstad, Edna Theodora,	*La Crosse.*
Shaw, Emma Hart,	*Madison.*
Siebecker, Karl La Follette,	*Madison.*
Smith, Diana Jean,	*Mondovi.*
Smith, Eleanor Clemons,	*Madison.*
Sprague, William Harvey,	*Elkhorn.*
Stanley, Milton Richie,	*Manawa.*

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Stark, Paul Edwin,	*Madison.*
Steig, Josie,	*Whitehall.*
Stromme, Olaf Ulring,	*Madison.*
St. Sure, Jeannette Lucile,	*Madison.*
Swenson, Edith Dinsdale,	*Madison.*
Swenson, Henry Edward,	*Racine.*
Teisberg, Halvor Orlando,	*Cottage Grove.*
Theobald, Monte Josephine,	*Wayne, Neb.*
Thompson, Grace,	*Washington, D. C.*
Thompson, Tilde Tomina,	*Deerfield.*
Tragsdorf, Clara Christine,	*Neilsville.*
Underwood, Bessie Caroline,	*Madison.*
Underwood, Walter Scott,	*Milwaukee.*
Ushser, Florence Lou,	*Madison.*
Virtue, Ethel Buell,	*Webster City, Ia.*
Walechka, John Harvard,	*Clintonville.*
Walker, Alice Mary,	*St. Croix Falls.*
Waller, Frank Laird,	*Menomonie.*
Wallis, Elvira Frances,	*Milwaukee.*
Wehmhoff, Frieda Gertrude,	*Burlington.*
Wells, Earl Harold,	*Madison.*
Whelan, Letta Helen,	*Madison.*
White, Charlotte Eleanor,	*Madison.*
White, Dorothy Elaine,	*Madison.*
Whyte, Effie Margaret,	*Watertown.*
Wiggenhorn, Ralph Guido,	*Watertown.*
Williams, Frankwood Earl,	*Indianapolis, Ind.*
Williams, Sidney James,	*Milwaukee.*
Willis, Henrietta May,	*Winona, Minn.*
Woffenden, Adah Annastasia,	*Madison.*
Wolfe, Hubert Otto, Jr.,	*Appleton.*
Wright, Colin Wilson, Jr.,	*Monroe.*
Wright, Ethel,	*Milwaukee.*
Wright, Marion Elizabeth,	*Baraboo.*
Young, Lily Mae,	*Madison.*
Zeisler, Leonard Bloomfield,	*Chicago, Ill.*

Course in Commerce

Atwood, Seth Burton,	*Rockford, Ill.*
Averill, George Baxter,	*Whitewater.*
Baas, Cornelius Tavenier,	*Lake Geneva.*

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Brewster, Eugene Moyer,	*Baraboo.*
Burke, Tracy Lloyd,	*La Crosse.*
Bush, Charles Oscar,	*Viroqua.*
Coe, Jerome Henry,	*Barron.*
Curtin, Joseph Henry,	*Madison.*
Davis, Ellis Arthur,	*Madison.*
Droege, Henry August,	*Eau Claire.*
Jones, Frank Conn,	*Lake Geneva.*
Lea, Robert Wentworth,	*Iron River.*
Leslie, John Woodworth,	*Chicago, Ill.*
Lewis, Lawrence Brownell,	*Clarinda, Ia.*
Logan, Arthur William,	*Madison.*
Montgomery, Harry Gage,	*Omaha, Neb.*
Mueller, Paul Gehard,	*Chicago, Ill.*
Nadler, John Fred,	*Verona.*
Nelson, Charles Lawrence,	*Sturgeon Bay.*
Niven, Robert Marcus,	*Sheridan.*
Nolan, Henry Thomas,	*Madison.*
Postlewait, Orvis Allen,	*Oak Park.*
Pryor, Earl,	*La Crosse.*
Reynolds, Paul Naugle,	*Jacksonport.*
Riley, Edmund Burke,	*Chippewa Falls.*
Sommers, Alfred Louis,	*Sheboygan.*
Stark, Herbert Carl,	*Milwaukee.*
Stone, James Riley,	*Reedsburg.*
Talbot, Roy Maxwell,	*De Kalb, Ill.*
Tarr, Charles Albert,	*New Auburn.*
Uehling, Alexander Theodore,	*Watertown.*
Volkmann, William Arnold,	*Kingston.*
Walbridge, John Solon, Jr.,	*Berlin.*
Webb, De Lancey Starkweather,	*Superior.*
Week, Harold J.,	*Stevens Point.*
Wrieth, John,	*Two Rivers.*

Course for Normal School Graduates

Adams, Beverly Fletcher,	*Cambria.*
Althoff, Alexander Theodore Gustav,	*Madison.*
Ames, Jesse Hazen,	*Shiocton.*
Baird, Oscar,	*River Falls.*
Baker, George Jacob,	*Alma Center.*
Bell, Elsie Adelaide,	*Winona, Minn.*

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Bettinger, Lillian Louise,	*Milwaukee.*
Boleng, Lee Hayes,	*Tamarack.*
Brennan, Nellie,	*Tomah.*
Brown, Roxana Cordia,	*Whitewater.*
Carter, Ethel Suzanne,	*Lancaster.*
Case, Lucetta,	*Norway Ridge.*
Christman, Anna Estella,	*Grand Rapids.*
Christoffers, Ethel Margaret,	*London.*
Coe, Gertrude Zella,	*Ft. Atkinson.*
Crain, Edward Patrick,	*Eldorado.*
Cronin, Helen Elizabeth,	*Oconomowoc.*
Daniels, Maude,	*River Falls.*
Desmond, Susie Isabella,	*Madison.*
Dinsdale, Grace Alma,	*Fennimore.*
Edsall, Bessie Eva,	*Ft. Atkinson.*
Enright, John Joseph,	*Arcadia.*
Gilbert, Edward Martinus,	*Blair.*
Godfrey, Myrtle Vida,	*Whitewater.*
Green, Abbie Anna,	*Basco.*
Hatch, Lisle Campbell,	*Black Earth.*
Hess, Nellie Carnahan,	*Madison.*
Holt, Frank Oscar,	*Janesville.*
Jahr, Charles Anton,	*Milwaukee.*
Keats, Myron Eliot,	*East Troy.*
Kelly, Charles Anson,	*Montford.*
Kempthorne, William Bismark,	*Platteville.*
Koenen, Anita Katherine,	*Milwaukee.*
Kreutz, Emma Lydia,	*Darlington.*
McDermott, Thomas Francis,	*Darlington.*
Nash, Francis Ralph,	*Ellsworth.*
North, Beulah Eda,	*Milton Junction.*
Schuler, Mary Louise,	*Milwaukee.*
Smith, Ethel Elizabeth,	*Augusta.*
Spooner, Lucia Claire,	*Superior.*
Steve, William Frederick,	*Middleton.*
Sutton, Margaret Eliza,	*Oshkosh.*
Towle, Leonard Ulysses,	*Lansing, Ia.*
Tunnicliffe, Richard Morton,	*Menasha.*
Vaughn, James Patrick,	*Eyota, Minn.*

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SOPHOMORE CLASS

Allen, Ruth Alice,	*Lake Geneva.*
Armstrong, Susan Naylor,	*Madison.*
Augspurger, Louis Fred,	*Sheboygan.*
Barber, Sara Curwen,	*Oshkosh.*
Barnes, Rufus Alexander,	*Elkhorn.*
Baumeister, Theodore Anton,	*Kewaunee.*
Beath, John William,	*Verona.*
Benson, Guy Alfred,	*Racine.*
Benton, Homer Harrington,	*Richland Center.*
Bertles, Alma,	*Green Bay.*
Bishop, Burnette Orville,	*Racine.*
Bitter, Elsa Anna,	*Sheboygan.*
Black, Oscar McDonald,	*Richland Center.*
Blankenagle, John Charles,	*Hartford.*
Blatz, Gustav Grover,	*Milwaukee.*
Blum, Herman,	*Eau Claire.*
Bogue, Grace Anna,	*Poynette.*
Bollenbeck, William Joseph,	*Madison.*
Boorman, Leal Mary,	*Madison.*
Borresen, Alice Julia,	*La Crosse.*
Bowen, Edith Elizabeth,	*Brodhead.*
Breitenfeld, Ella Meta,	*Madison.*
Breitkreutz, Adeline Albertine,	*Wausau.*
Bresee, Emily May,	*Madison.*
Brindley, Elbert Edwin,	*Richland Center.*
Brown, Althea Huntington,	*Madison.*
Brown, Edna M.,	*Rhinelander.*
Brown, Florence Mary,	*Spring Green.*
Brown, Harry Willard,	*Columbus.*
Brown, John Townsend,	*Antigo.*
Brown, Webster Anderson,	*Rhinelander.*
Browne, Gerry Edward,	*Rhinelander.*
Burns, Katherine Varena,	*Oakfield.*
Caine, Ethel Mary,	*Milwaukee.*
Canan, Cuba Quincy,	*La Crosse.*
Carpenter, Mae Louise,	*Fond du Lac.*
Carter, Bessie Ann,	*Lancaster.*
Cary, Lucian Herbert,	*Madison.*
Casey, Edwina Mary,	*Mt. Horeb.*

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Churchill, Charlotte Amelia,	*Monroe.*
Churchill, Ethel Elizabeth,	*Monroe.*
Coleman, Bessie Rachael,	*Madison.*
Colignon, John Joseph,	*Sturgeon Bay.*
Comstock, Florence,	*Milwaukee.*
Conger, Herbert Louis,	*Milwaukee.*
Cox, Eldonne Frederick,	*Milwaukee.*
Crawford, Helen Jennings,	*Hazel Green.*
Crosby, May Lillian,	*Muscoda.*
Cudahy, Michael Francis,	*Milwaukee.*
Curkeet, William Robert,	*Madison.*
Curtis, Martha Elizabeth,	*Madison.*
Cutter, Louise Carlton,	*Eau Claire.*
Dahmen, Fred William,	*Cross Plains.*
Darragh, Ellis Albert,	*Marinette.*
Davenport, Audrey Amazon,	*Madison.*
Denu, Autie Lillian,	*Madison.*
De Sautelle, William Thomas,	*La Crosse.*
Diemer, Melvin Edison,	*Dakota, Ill.*
Dittman, Fred August,	*La Crosse.*
Dodson, Helen McVey,	*Chicago, Ill.*
Dohmen, Fred Wentworth,	*Milwaukee.*
Downing, Frederick Price,	*Watertown.*
Duckert, Richard Frederick,	*Cottage Grove.*
Durkee, Marjorie,	*Lake Geneva.*
Eastman, Miriam Elizabeth,	*Plymouth.*
Elliott, Cosalette,	*Kansas City, Mo.*
Enright, Frances Catherine,	*Troy Center.*
Erwin, Edith Josephine,	*Milwaukee.*
Etter, Martha Inez,	*Monroe.*
Evans, Alice,	*Madison.*
Evans, Gertrude Catherine,	*Madison.*
Faucett, Frances,	*Laurium, Mich.*
Fehlandt, Olive Marie,	*Madison.*
Fischer, August Charles,	*Waukegan.*
Flint, Helen,	*Madison.*
Floete, Franklin Grotewohl,	*Armour, S. D.*
Francisco, Louis Joseph,	*Richmond, Ind.*
Frederickson, Marion Emma,	*Madison.*
Frost, Raymond Baker,	*Almond.*

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Gangstad, Ida Marie,	*Deerfield.*
Gay, Delgracia Barbara,	*Madison.*
Gay, Mary Elizabeth,	*Madison.*
Gilkey, Mabel Elma,	*Oshkosh.*
Gingrich, Mabel Aseneth,	*Rockford, Ill.*
Goetz, Sadie Alice,	*Postville, Ia.*
Goldschmidt, William Jacob,	*Milwaukee.*
Goldsworthy, Harold Sherman,	*Mineral Point.*
Gordon, Nellie Elsie,	*Waupaca.*
Greubel, Otto Washington,	*Milwaukee.*
Greverus, Jenos,	*Appleton.*
Gronert, Theodore,	*Prairie du Chien.*
Gruenewald, Arthur Herrman,	*Oshkosh.*
Gruhl, Edwin Frederick,	*Milwaukee.*
Gutsch, Milton Adolph,	*Sheboygan.*
Hambrecht, Elizabeth Lois,	*Middleton.*
Hannan, William Frawley,	*Milwaukee.*
Hanten, John Henry, Jr.,	*Watertown, S. D.*
Hart, Arthur Eugene,	*Turtle Lake.*
Hartwig, Douglas Ferdinand,	*Watertown.*
Harvey, Harold Vincent,	*Racine.*
Hayes, Catherine Elizabeth,	*La Crosse.*
Heinz, Adolph,	*Madison.*
Hewitt, George Walter,	*Oshkosh.*
Hildebrand, Ruby Zaidee,	*Milwaukee.*
Holmes, Edna Dorothea,	*Milwaukee.*
Hood, Thurman Los,	*La Crosse.*
Hopson, Amy Jane,	*Madison.*
Horan, Lenore Margaret,	*Eau Claire.*
Howe, Anna Josephine,	*Meadville, Pa.*
Hunter, Helen Katherine,	*Racine.*
Hutson, Harriet Mae,	*Madison.*
Jackson, Charles Proctor,	*De Pere.*
Jamieson, Laura Belle,	*Poynette.*
Jenkins, Deborah May,	*Elroy.*
Jennings, Ruth Leland,	*Madison.*
Joeckel, Carleton Bruns,	*Lake Mills.*
Johnson, Helen McCarthy,	*Aurora, Ill.*
Johnson, J. Cornelius,	*Madison.*
Joslin, Elizabeth Verran,	*Madison.*
Kahl, Emma Jeanette,	*Madison.*

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Karges, Frank Edward,	*Burlington.*
Karrow, Herman Henry,	*Milwaukee.*
Kasten, Marie Antoinette,	*Milwaukee.*
Kendrick, Agnes Janet,	*Michigan City, Ind.*
Kirby, Ethel Louisa,	*Milwaukee.*
Kirst, Ottilie Louise,	*Waunakee.*
Knüppel, Arnold Ewald,	*Appleton.*
Larsen, Charles Sumner,	*Green Bay.*
Leaper, Warren Eugene,	*Green Bay.*
Le Clerc, Genevieve Marguarite,	*Milwaukee.*
Le Febvre, Clarence Charles,	*Green Bay.*
Lehmann, Van V.,	*Neosho.*
Leiserson, William Morris,	*Madison.*
Lewellin, Bessie Eleanor,	*Waterloo.*
Longfield, Mary Fidelia,	*Madison.*
Lounsbury, Sylvia Elizabeth,	*Madison.*
Luckinbach, Walter Conrad,	*Oconto.*
Luder, Leslie Jacob,	*Baraboo.*
Luеders, August Henry,	*Chicago, Ill.*
Lunn, Joseph Ephraim,	*Sioux Falls, S. D.*
Lurvey, Homer David,	*Dousman.*
MacArthur, Isabella,	*Superior.*
MacIntosh, Frances Mary,	*Waunakee.*
Mac Murtery, Katherine,	*Waupaca.*
Maiben, Frank Lucilius,	*Lancaster.*
Manning, Florence Edna,	*Belvidere, Ill.*
Manor, Emma Elizabeth,	*Baraboo.*
Marks, Mary Ella,	*Davenport, Ia.*
Martin, Anne Dodge,	*Darlington.*
Mathews, George Clyde,	*Burlington.*
Mc Hugh, Katherine,	*Superior.*
Mc Intosh, Ida Louise,	*Madison.*
Melaas, Alva Jeanette,	*Stoughton.*
Melby, Elizabeth,	*Merrillan.*
Mercein, Charles Schley,	*Milwaukee.*
Merrill, Winifred Byrne,	*Ashland.*
Mills, Jean,	*Madison.*
Moe, Josephine Margretta,	*Pensaukee.*
Monshau, Carl Eslie,	*Evansville.*
Morey, Frances Stanton,	*Winona, Minn.*
Morrison, Ethel,	*Pawnee City, Neb.*

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Morrison, Ralph Newton,	*Rockford, Ill.*
Muenster, Ernst, Jr.,	*New Holstein.*
Mulaney, John Valentine,	*East Troy.*
Murchison, Hettie Marie,	*Madison.*
Murphy, Nellie Christine,	*Evanston, Ill.*
Myers, Harold Bunce,	*Janesville.*
Nebel, Norma Marie,	*Madison.*
Nebel, Walter,	*Madison.*
Nelson, Ferdinand Carl,	*Rockford, Ill.*
Neprud, Martha,	*Westby.*
Neprud, Nora,	*Westby.*
Nethercut, Mary Bell,	*Lake Geneva.*
Nevius, Blake Reynolds,	*Winona, Minn.*
Oeland, Legare Logan,	*Madison.*
Owens, Lois May,	*Wauwatosa.*
Parmelee, Mary Reynale,	*Sheboygan.*
Peshak, Josephine Angeline,	*Sun Prairie.*
Pilgrim, Mary Grace,	*Somerset.*
Pope, Rosa Matilda,	*Racine.*
Potter, Frank Ohr,	*Madison.*
Purdy, Leslie Fargher,	*Michigan City, Ind.*
Putnam, May Margarette,	*Madison.*
Quinn, Bernice Ethel,	*Madison.*
Rademaker, Oscar,	*Milwaukee.*
Rankin, Edward Ira,	*Ft. Atkinson.*
Rasmussen, William James,	*Phillips.*
Rayne, Mary Elizabeth,	*Madison.*
Recker, Lorraine,	*Rhinelander.*
Rhodes, George Wallace,	*Trempealeau.*
Rice, Eleva May,	*Sparta.*
Richmond, Daniel,	*Morrison, Ia.*
Riess, De Witt Frank,	*Sheboygan.*
Rietow, Rhoda Henryetta,	*Sheboygan.*
Ringle, Leander Lewis,	*Wausau.*
Robinson, Edgar Eugene,	*Oconomowoc.*
Roehl, Julius Otto,	*Milwaukee.*
Roesch, Arthur John,	*Merton.*
Roller, Juliann Anna,	*Tomahawk.*
Ruth, Una Gertrude,	*Keokuk, Ia.*
Ruth, Verl Alton,	*Keokuk, Ia.*
Rutte, Joseph Walter,	*Pella.*

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Sabin, Ethel Ernestine,	*Geddes, S. D.*
Sayle, Flora Mary,	*Cleveland, O.*
Schnell, Lottie Irene,	*Madison.*
Schreiner, Hildur Betzy Helena,	*Westby.*
Schwartz, Susie Luella,	*Troy Center.*
Segerstrom, Signa,	*Rhinelander.*
Severin, Harry Paul,	*Milwaukee.*
Sexton, Walter Gresham,	*Marshfield.*
Sheean, John Osbourn,	*Galena, Ill.*
Sheets, Geneva Frances,	*Madison.*
Sheets, George Marsh,	*Madison.*
Shiels, Lena May,	*Madison.*
Sieb, Zettie,	*Racine.*
Simon, Florence Anne,	*La Crosse.*
Simons, Dora May,	*Shawano.*
Skinner, John Sharp,	*Princeton, Ill.*
Smith, Charles Forster,	*Madison.*
Spence, Mary Leslie,	*Lodi.*
Spencer, Emory Waldo,	*Milwaukee.*
Staley, Katherine Eleanor,	*Madison.*
Stark, Charles William,	*Tiffany.*
Stark, Laura Sophia,	*Madison.*
Steenbock, Helen Christine,	*Madison.*
Steinfort, Elvira Bertha,	*Watertown.*
Stempfel, Theodore C.,	*Indianapolis, Ind.*
Stephenson, Roy,	*Sturgeon Bay.*
Stephenson, Willard L.,	*South Bend, Ind.*
Stevens, Anna Jessamine,	*Madison.*
Stoddard, Elizabeth Shute,	*Janesville.*
Swenson, Alice Mann,	*Madison.*
Swenson, Victor Gerhard,	*Madison.*
Tollefson, Arthur Ralph,	*West Salem.*
Torrey, Marion Elizabeth,	*Elgin, Ill.*
Townsend, Elizabeth Hasselle,	*Oconomowoc.*
Traill, Mona Susie,	*Austin, Ill.*
Upson, Lent Dayton,	*Rockford, Ill.*
Van Slyke, Ruth Corbett,	*Madison.*
Vaughn, Florence,	*Denver, Colo.*
Vaughn, Lulu,	*Wauzeka.*
Vreeland, Baxter Graff,	*Denver, Colo.*
Wald, Anna Charlotte,	*Madison.*

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Wallin, Jennie Belden,	*Prairie du Chien.*
Weber, Lynda Marguerite,	*New Holstein.*
Webster, Lawrence Benjamin,	*Marshfield.*
Wehausen, Edna Grace,	*Madison.*
Wermuth, Julius,	*Madison.*
Wertz, Martha Robinson,	*Forreston, Ill.*
Whidden, Marian,	*Oak Park, Ill.*
White, Ethel Silvia,	*Deerfield.*
Whitmore, Alba Daniel,	*Spring Prairie.*
Wightman, Mildred Isabelle,	*Elroy.*
Williams, Anna Margaret,	*Cobb.*
Williams, James Bennett,	*Racine.*
Williams, Robert Eversz,	*Milwaukee.*
Wolff, Herman William,	*Lake Mills.*
Wood, Flora Edna,	*Hancock.*
Wright, Horace Wetherill,	*Madison.*
Wright, Mary Louise,	*Madison.*
Zeidlhack, Felix Stephen,	*Milwaukee.*

Course in Commerce

Anderson, Elvin Douglas,	*North Crandon.*
Attridge, Harvey Howard,	*Baraboo.*
Auer, Frank Cleveland,	*Eau Claire.*
Bagley, Frederick, Phillips, Jr.,	*Pittsburg, Pa.*
Baley, Earl Francis,	*Wonewoc.*
Brereton, Hugh Hulcatte,	*Lodi.*
Brown, Frederick George,	*Oshkosh.*
Carlyon, Roscoe Edward,	*Clear Lake, Ia.*
Cashel, Morris Joseph,	*Grafton, N. D.*
Collver, Clinton Irving,	*Clinton.*
Crossman, Roland Derry,	*Fall River.*
Davidson, William Ward,	*Chicago, Ill.*
Eddy, Ray Thomas,	*Madison.*
Elwell, Fayette Herbert,	*McGregor, Ia.*
Fisher, Frank Whitney,	*Janesville.*
Gesell, Egbert George,	*Tomahawk.*
Gridley, Leander Llewellyn,	*Wauwatosa.*
Grobe, Edwin Henry,	*Menomonie.*
Hatch, Clifford Franklin,	*Zenda.*
Hayes, John Robert,	*La Crosse.*
Hefty, Thomas Rudolph,	*New Glarus.*

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Hickcox, Frank Thomas Clark,	*Spring Green.*
Hopkins, Claudius Marion,	*Fennimore.*
Hume, Wellington Wilson,	*Green Bay.*
Huntley, Murray Brown,	*Elroy.*
Kelley, William,	*Woodman.*
Krauthoefer, Emory William,	*Milwaukee.*
Kypke, Pierre August,	*Lake Mills.*
Leedom, Hampton,	*Milwaukee.*
Levisee, Lester Halford,	*Clintonville.*
Luder, Arthur Frank,	*Baraboo.*
Luedke, August John,	*Milwaukee.*
Lumsden, Robert Roy,	*Elroy.*
Mac Lanahan, Raymond Clark,	*McGregor, Ia.*
McGovern, Fred Peter,	*Florence.*
McPartlin, Leslie John,	*Oshkosh.*
Metzner, Lee Weilep,	*Kewaunee.*
Meves, Walter Henry,	*Sheboygan.*
Meyer, Herman Fred,	*Cleveland.*
Mueller, Frank August,	*Lake Geneva.*
Myers, Percy Harold,	*Wauwatosa.*
Nelson, Leonard Palmer,	*Iron River.*
Orr, Robert Breckenridge,	*St. Joseph, Mo.*
Paul, Lawrence Addison,	*Henderson, Ia.*
Peck, Calvin Huntley,	*Racine.*
Phelps, Sumrer Henry,	*Minto, N. D.*
Phillips, Milton Clarence,	*Oshkosh.*
Proctor, Lloyd Richard,	*Arcadia.*
Rawlings, William Edward,	*Eau Claire.*
Rehm, Walter Arthur,	*Chicago, Ill.*
Reuther, Jacob,	*Sheboygan.*
Rice, Felix,	*Milwaukee.*
Roehr, Roland Blackstone,	*Milwaukee.*
Roseth, Leonard Edward,	*Eau Claire.*
Sanborn, Raymond Parker,	*Portage.*
Scheldrup, Robert Isaac,	*Frederic.*
Schiess, Roy Edward,	*Chicago, Ill.*
Simpson, Verazno Kerdolff,	*Chicago, Ill.*
Slade, Mott Thomas,	*Slade's Corners.*
Sletten, Obert,	*La Crosse.*
Soukup, Rudolph,	*Sturgeon Bay.*
Stroud, Ray Morris,	*Portage.*

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Sylvester, Edwin Stull,	*Milwaukee.*
Tarbox, Charles William,	*La Crosse.*
Thierman, Max Lewis,	*Thiensville.*
Wallace, Eugene Edwards,	*Galena, Ill.*
Walvoord, Anthony,	*Sheboygan.*
Webster, Fred Norton,	*Chicago, Ill.*
Woodruff, Wendell,	*Mondovi.*

—330

FRESHMAN CLASS

Adams, Lillian Josephine,	*Beloit.*
Affeldt, George August,	*Milwaukee.*
Alexander, Fay,	*Fort Smith, Ark.*
Alford, Alice Irene,	*Madison.*
Allen, Charles Earl,	*Mazomanie.*
Allen, Mary Louisa,	*Lake Geneva.*
Angell, Laura Frances,	*Delavan.*
Ausman, Carl Frederick,	*Eau Claire.*
Baer, Edna,	*Hartford.*
Barr, Alan Robert,	*Lake Geneva.*
Baumgarth, Elsie Magdalena,	*Fond du Lac.*
Becker, Kathryn Christina,	*Watertown.*
Becket, Phoebe,	*Chicago, Ill.*
Bentzien, Emil William,	*Milwaukee.*
Bergh, Lona Irene,	*Madison.*
Berkman, David Mayo,	*Rochester, Minn.*
Bessey, John,	*Cudahy.*
Beye, Howard Lombard,	*Oak Park, Ill.*
Billings, Goodsell Barney,	*Cobb.*
Billings, Henry Mortimor,	*Cobb.*
Bird, Elsie Josephine,	*Madison.*
Birge, Raymond Thayer,	*Troy, N. Y.*
Bissell, Wayne William,	*Lodi.*
Blaisdell, Eula Elizabeth,	*Darlington.*
Bodden, Rega Frances,	*Milwaukee.*
Boyd, Alma Marie,	*Madison.*
Bram, Hazel Ellen,	*Madison.*
Brandenburg, Frederick Sarles,	*Madison.*
Bridge, Ethel Nancy,	*Monroe.*
Bridgman, Robert White,	*Madison.*
Brindley, Grace Leigh,	*Boscobel.*
Brown, Elizabeth,	*Madison.*

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Buchen, Gustav William,	*Antigo.*
Burgess, Milo Tipton,	*Mineral Point.*
Burnham, Dorothy Marie,	*Madison.*
Burnham, Ethel Romelia,	*La Crosse.*
Butler, Anna Isabell,	*Madison.*
Cady, Grace Raymond,	*Reedsburg.*
Caradine, Elva Jane,	*Monroe.*
Carlin, Hallie Estella,	*Ashland.*
Carpenter, Florence Melanie,	*Windsor.*
Carstens, Fred Henry,	*Michigan City, Ind.*
Castendyke, Elsie Bertha,	*Peru, Ill.*
Chynoweth, Phillipe,	*Madison.*
Clark, Ethel Bough,	*McGregor, Ia.*
Cleveland, Frank Smith,	*Fond du Lac.*
Cochrane, Ava Lou Ella,	*Madison.*
Coerper, Florence Maude,	*Hartford.*
Cogswell, Daniel Burgess,	*Madison.*
Cole, Felix,	*Washington, D. C.*
Coleman, Herbert Clinton,	*Lowell.*
Comstock, Amy,	*Milwaukee.*
Confer, Edna Lorene,	*Madison.*
Cook, Harold Jewett,	*Madison.*
Cooke, Ruth,	*Madison.*
Crawford, Mary Adelene,	*Decorah, Ia.*
Cudahy, Clarence John,	*Milwaukee.*
Cunningham, Carl Jefferson,	*Chippewa Falls.*
Cunningham, William Bernard,	*Beloit.*
Cutter, Helen Catharine,	*Eau Claire.*
Dahle, Marie Genevieve,	*Mt. Horeb.*
Dates, Charles Levi,	*Portage.*
Davison, Adolph Kern,	*Beaver Dam.*
Desmond, James Francis,	*Madison.*
Diedrich, Victor Peter,	*Madison.*
Dodge, Anna Edith,	*Windsor.*
Doe, Ethelyn Anna,	*Elgin, Ill.*
Donaldson, Jean Watt,	*McGregor, Ia.*
Donovan, Katherine Agnes,	*Madison.*
Douglass, Blanche Eunice,	*Lake Mills.*
Dunn, Anna Regina,	*Madison.*
Earles, William Wesley,	*Milwaukee.*
Edgerton, Henry White,	*Washington, D. C.*

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Engelken, Marie Jeanette,	*Dubuque, Ia.*
Evans, Charles Floyd,	*Muscoda.*
Evans, Orrena Louise,	*Dodgeville.*
Fass, Hugo William,	*Milwaukee.*
Federle, Hedwig Ellen,	*West Bend.*
Fenton, Theo,	*Madison.*
Fessler, Archie Harry,	*Sun Prairie.*
Fisher, Roland Frederich,	*Baraboo.*
Fitch, Helen Fairchild,	*Mason City, Ia.*
Flick, Ernest Clinton,	*Augusta.*
Flower, Gretta Lenora,	*Monticello.*
Flynn, Michael Henry,	*Hartford.*
Foley, James Louis, Jr.,	*Wauwatosa.*
Forward, Stantial,	*Berlin.*
Frodermann, Emma,	*Milwaukee.*
Gale, Martha,	*Oregon, Ill.*
Gallagher, Viola Brooke,	*Peru, Ill.*
Gamble, Estella,	*Moline, Ill.*
Gapen, Jane Bopeep,	*Madison.*
Gardiner, Charlotte Georgia,	*Madison.*
Gedney, Katherine Sutherland,	*Onalaska.*
Gilkey, Edna Annie,	*Oshkosh.*
Glaser, John Henry,	*Appleton.*
Gloyer, Walter Oscar,	*Milwaukee.*
Godfrey, Rush Clayton,	*Lancaster.*
Goldenburger, Olive,	*Madison.*
Gonnermann, Anna Louise	*Kenosha.*
Gorst, Genevieve English,	*Mendota.*
Graebner, George John,	*Milwaukee.*
Gratz, Rose Bergeta,	*Madison.*
Green, Ethel Blanche,	*Middleton.*
Greene, Eunice Genevieve,	*Madison.*
Griswold, Chester Arthur,	*Waukesha.*
Grover, Alice Mary,	*Madison.*
Gunther, Otto,	*Sheboygan.*
Gunther, Theodore John,	*Sheboygan.*
Haase, Oscar Rudolph,	*Milwaukee.*
Hahn, William Theodore,	*Clinton.*
Haman, Jennie Emilie,	*Milwaukee.*
Hammond, Arthur A.,	*Cottage Grove.*
Handt, Carolyn Hazel,	*Fond du Lac.*

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Hannahs, Lynn Thomas,	*Kenosha.*
Hayes, Mae Estella,	*Janesville.*
Hayes, Ruth Ingram,	*Eau Claire.*
Hean, Emma Isabel,	*Madison.*
Heise, George William,	*Milwaukee.*
Henry, Alice,	*Elroy.*
Hern, Herbert Arthur,	*Tiffany.*
Herreid, Ingvall Norman,	*Columbia.*
Heuer, Josephine,	*Madison.*
Hibbard, Clarence Addison,	*Racine.*
Higbee, Hazel Bessey,	*Milwaukee.*
Hints, Richard Francis,	*Monticello.*
Hoegh, Nanna Marie,	*Spring Grove, Minn.*
Hogan, James Mangan,	*Fond du Lac.*
Holmes, Arthur Thomas,	*La Crosse.*
Holston, Anna,	*Ashland.*
Homuth, Erwin Silas,	*Madison.*
Hopkins, Mary Wright,	*Pueblo, Colo.*
Hostak, Frank George,	*Two Rivers.*
Hudson, Philip Loren,	*Mazomanie.*
Humphrey, Charlotte Martha,	*Sheboygan Falls.*
Huson, Willard Lyman,	*Plymouth.*
Ihland, Leonard Ole,	*De Forest.*
Jensen, Martha,	*Marinette.*
Johnson, Agnes Learned,	*Madison.*
Johnson, Henry Thorville,	*Marinette.*
Johnson, John Hugo,	*Des Moines, Ia.*
Johnson, Nina,	*Kokomo, Ind.*
Jones, Mayme Rose Osgood,	*Sheboygan Falls.*
Jordon, Winifred,	*Cleveland, O.*
Juergens, Carl Henry William,	*Madison.*
Jung, Ernst,	*Milwaukee.*
Kayser, Stella Otillia,	*Madison.*
Kelley, Carlton Alexander,	*Sparta.*
Kelley, Park Kenneth,	*Madison.*
Kelly, Mary Margaret,	*Madison.*
Killen, Sherman John,	*Cato.*
King, Mary Ann,	*Spring Green.*
Kirwan, Jeanne Mabel,	*Stevens Point.*
Kleinheinz, Carrie Cora,	*Madison.*
Knight, Rebekah Scotten,	*Madison.*

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Krumrey, Adelaide,	*Plymouth.*
Kuhlmeyer, Edith Pauline,	*Madison.*
Kurtenacker, Lilly,	*La Crosse.*
Lachmund, Clara,	*Sauk City.*
Lampert, James Gillespie Blaine,	*Oshkosh.*
Langholff, Lydia Johanna,	*Jefferson.*
Leary, Agnes Veronica,	*Madison.*
Lee, Abraham,	*Cashton.*
Lehmann, Herbert James,	*Oconomowoc.*
Lehner, Adolph Phillip,	*Ackerville.*
Leicht, William Freeman Vilas,	*New Lisbon.*
Lewis, Isabell Meekin,	*Fond du Lac.*
Lewis, Martha Ellen,	*Madison.*
Lewis, Read,	*Chicago.*
Libby, Caroline Gail,	*Madison.*
Lindstrem, Jeanette Marie Emily,	*Oconto.*
Linkfield, Hazel Frances,	*Elgin, Ill.*
Lochner, Louis Paul,	*Milwaukee.*
Longfield, Mary Ellen,	*Madison.*
Luethge, George Casper,	*Oshkosh.*
Lundemer, Louisa Bunnell,	*Milwaukee.*
Lundquist, Frances Gertrude,	*Kenosha.*
Lyle, Margaret Blanche,	*Madison.*
Lyle, Stanley David,	*Madison.*
Mahoney, Emmett Paul,	*Viroqua.*
Malone, James Francis,	*Juneau.*
Marshall, Eugene Joseph,	*Detroit, Mich.*
Marshall, James Disraeli,	*Madison.*
McClure, Martha Swingley,	*Mt. Morris, Ill.*
McCornack, Alexander Edwin,	*Elgin, Ill.*
Meek, Katherine Victoria,	*Dane.*
Melick, Alyce Marguerite,	*Dodgeville.*
Melick, Gladys Ennor,	*Dodgeville.*
Merz, Aline Adeline,	*Madison.*
Meyer, Lydia Lucile,	*Milwaukee.*
Michand, Arthur Alexander,	*Duluth, Minn.*
Michelson, Alma Geatha,	*Mt. Horeb.*
Miller, Jesse Martin,	*Muscoda.*
Miller, Karl Ferdinand,	*Milwaukee.*
Milverstedt, Hazel Adelia,	*Chicago, Ill.*
Minier, Emma Fanny,	*New Richmond.*

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Minnick, Asa Morrill,	*Madison.*
Moffatt, Mary Elizabeth,	*Davenport, Ia.*
Morell, Gertrude Ina,	*Milwaukee.*
Moss, Ruth Elizabeth,	*Milwaukee.*
Moss, Theda Antoinette,	*Milwaukee.*
Murrish, John Passgburn,	*Mazomanie.*
Muth, Edna Wilma,	*Marinette.*
Nelson, Olga Theresa,	*Racine.*
Newcomer, Harry Sidney,	*Chattanooga, Tenn.*
Noe, Paul William,	*Milwaukee.*
Norris, Almon Benjamin,	*Viroqua.*
Oppen, Lucy Hiddessen,	*Stoneham, Mass.*
Otjen, Fanny Heams,	*Milwaukee.*
Owens, Lylia Jeanette,	*Madison.*
Pearce, Charles Chester,	*Dodgeville.*
Peltier, George Leo,	*Grand Rapids.*
Pengelley, Ruby Viola,	*Madison.*
Penshorn, John Carl,	*Milwaukee.*
Perkins, Lillian,	*Dodgeville.*
Pettigrew, Paul Frederick,	*Sioux Falls, S. D.*
Pfeifer, Mary Jane,	*Sheboygan Falls.*
Pfiffner, Joseph Roe,	*Stevens Point.*
Phillips, Blanche Bemlau,	*Sioux City, Ia.*
Pierpont, Mabel,	*Aurora, Ill.*
Place, Sadie Barclay,	*Marinette.*
Pomeroy, Lilla Mary,	*Oconomowoc.*
Post, Gustav John,	*Algoma.*
Post, Kate,	*Madison.*
Pray, Walter Joseph,	*Indianapolis, Ind.*
Pressentin, Maria Louise,	*Madison.*
Price, Beulah May,	*Madison.*
Priest, Gladys Eva,	*Madison.*
Pugh, Laura,	*Portage.*
Quarles, Henry Capron,	*Milwaukee.*
Rapps, Grover Herman,	*Milwaukee.*
Regan, Stephen Francis,	*Madison.*
Reynolds, Alice Rice,	*Sturgeon Bay.*
Rigney, Stephen John,	*Sciota Mills, Ill.*
Robison, Aleta,	*Oconomowoc.*
Roehm, Florence C.,	*Calumet, Mich.*
Roehm, Mame Margaret,	*Calumet, Mich.*

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Roethke, Rudolph Walter,	*Chilton.*
Rogers, John Logan,	*Madison.*
Roloff, Edna Arlisle,	*Madison.*
Rosencrans, Blanche Louise,	*Kansas City, Mo.*
Rosenthal, Aaron Bernard,	*Milwaukee.*
Rossberg-Leipnitz, Johanna,	*Sheboygan.*
Roybar, Nellie Claire,	*Madison.*
Sachtjen, Herman William,	*Madison.*
Salter, Harold George,	*Colby.*
Samuels, Alexander Felix,	*West Salem.*
Sawyer, Lilla Holt,	*Beaver Dam.*
Schelp, Hazel Bartlett,	*Chicago, Ill.*
Schuler, Margaret Mary,	*Milwaukee.*
Schulze, Bertha Johanna,	*La Crosse.*
Seek, Blanche Akeley,	*Ashland.*
Severson, Ida Josephine,	*De Forest.*
Seville, Fred Bernard,	*Lodi.*
Shaver, Stella Mae,	*Shell Lake.*
Shelton, Margaret,	*Rhinelander.*
Shepard, Katherine Helen,	*Mineral Point.*
Sherman, William Gilbert,	*Milwaukee.*
Sherron, Alice Marie,	*Monroe.*
Simpson, Josephine Verrazano,	*Winona, Minn.*
Slyfield, Forrest Foster,	*Sheboygan.*
Smith, Benjamin Walter,	*Janesville.*
Smith, Jessie Clemons,	*Madison.*
Smith, Pinckney Freeman,	*Brownington, Mo*
Snyder, Alfa Lovida,	*Escanaba, Mich.*
Spalding, Edward Wells,	*Tomah.*
Spargo, Clyde Marion,	*Lead, S. D.*
Spellman, Lloyd Pyre,	*Kansas City, Mo*
Sprecher, Alice Adell,	*Madison.*
Staley, Jennie,	*Madison.*
Steffen, Lyman Allen,	*Antigo.*
Steinfeldt, Charles Rudolph,	*West De Pere.*
Stevens, Bessie Maud,	*Madison.*
Stickney, Mary Eleanor,	*Baraboo.*
Stiehm, Ewald Ottowin,	*Johnson Creek.*
Stitzer, Sibylla Mae,	*Boscobel.*
Stoelting, Hugo Herbert,	*Oconto.*
Stone, Helen Margaret,	*Medford.*

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Stover, Daniel George,	*Milwaukee.*
Strong, Marion Ruth,	*Lake Mills.*
Sutherland, Harry Nicholas,	*Madison.*
Swanson, Ada Elizabeth,	*Owen.*
Swenson, Albert Paul,	*Madison.*
Swenson, Thorborg,	*Rockford, Ill.*
Syftestad, Anna Emilia,	*Madison.*
Sykes, Dora Louise,	*Milton Junction.*
Tani, Hidezo,	*Sapparo, Japan.*
Taylor, Florence Wills,	*Linden.*
Taylor, Mary Katherine,	*Madison.*
Te Selle, Clarence John,	*Sheboygan Falls.*
Thatcher, Sarah Gertrude,	*Escanaba, Mich.*
Thayer, Vivian Trow,	*Delafield.*
Thomas, Ethel May,	*Superior.*
Tormey, Mary Regina,	*Madison.*
Trainor, Kate,	*Madison.*
Trump, Florence Laura,	*Plain.*
Tyvand, Henry Albert,	*Mt. Horeb.*
Vaughan, Ione De LaFontaine,	*Milwaukee.*
Volkmann, Hildegard Caroline,	*Watertown.*
Vreeland, Clyde Emerson,	*Richland Center.*
Wahl, Harry Roswell,	*Stratford.*
Walbridge, Ethel Lavonne,	*Madison.*
Warren, Wheeler,	*Milwaukee.*
Waterman, Lucile Byrne,	*Superior.*
Wattawa, Virginia,	*Kewaunee.*
Wheelright, Vivian Rowley,	*Belleville.*
Whittier, James Ray,	*Madison.*
Wilcox, Elizabeth Foster,	*Clinton Junction.*
Wilcox, Lucile,	*Menomonie.*
Wilke, Eda Martha,	*Madison.*
Witte, Dexter Hathaway,	*Waukesha.*
Witte, Emil Edwin,	*Watertown.*
Wittle, Lulu,	*Madison.*
Wolfermann, Sidney Jonas,	*Streator, Ill.*
Wolff, Evaline Mary,	*Cumberland.*
Wylie, Frederick McNelly,	*Morrisonville.*

Course in Commerce

Ash, Brisbine Clay,	*Pierre, S. D.*
Ball, Tom Lee,	*Madison.*

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Baumann, Carl Alfred,	*Watertown.*
Baumbach, Frederic Louis,	*Milwaukee.*
Bowen, William Jennings,	*Richland Center.*
Brose, William Michael,	*Racine.*
Castle, Sidney Lester,	*Austin, Ill.*
Castle, Ward,	*Austin, Ill.*
Cochran, Percival Max,	*Ashland.*
Conley, John Albert,	*Reedsburg.*
Coorsen, Louis Arthur,	*Milwaukee.*
Coward, Stanley Chandler,	*Oregon.*
Cunningham, Arthur James,	*Beloit.*
Davis, John Jay,	*Oshkosh.*
Davis, Rawson,	*Waukesha.*
Dickerson, Harry Wadsworth,	*Earlville, Ill.*
Dinet, Eugene Augustus,	*Joliet, Ill.*
Doud, Giles Budlong,	*La Crosse.*
Dudley, Harold Mann,	*Evanston, Ill.*
Edwards, Ralph Earnest,	*Chicago, Ill.*
Eierman, Arthur Charles,	*Milwaukee.*
Elwell, Harold Manford,	*Minneapolis, Minn.*
Erickson, Elmer Andrew,	*Marinette.*
Fenton, Ida,	*Madison.*
Fernald, Sidney Wentworth,	*St. Paul, Minn.*
Fitzgerald, William Lennox,	*Milwaukee.*
Foiles, Earl Le Roy,	*De Kalb, Ill.*
Frank, Arthur August,	*Milwaukee.*
Fritz, George Harry,	*Mendota, Ill.*
Fuller, Clarence Waldo,	*Madison.*
Gascoigne, Farwell,	*Evanston, Ill.*
Grady, Albert William,	*Pt. Washington.*
Gielow, Walter Charles,	*Manitowoc.*
Gross, Schofield Brewster,	*Riverside, Ill.*
Hastings, Rolland Thomas Rankin,	*Chicago, Ill.*
Helmholtz, Henry Albert,	*Madison.*
Hood, Frank Gardiner,	*Madison.*
Hunter, Clyde Harvey,	*La Salle, Ill.*
Kaltenborn, Walter George,	*Merrill.*
Kelly, William Henry,	*Owatonna, Minn.*
Kerchensteiner, Mark Joseph,	*Jefferson.*
Kleimenhagen, Walter Ernest,	*Kilbourn.*
Knight, Douglas Scotten,	*Bayfield.*

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Koltes, Isidore,	*Madison.*
Kroening, August Michael,	*Leopolis.*
Lamb, Loyd,	*La Crosse.*
Logan, Edwin Harold,	*Madison.*
Luce, Milton Hayes,	*Kansas City, Mo.*
McCusker, Leo Maher,	*Danville, Ill.*
Meyer, Ewald Henry,	*Reedsburg.*
Mueller, Alfred Theodore,	*La Crosse.*
Neeves, Harold Wilfred,	*Madison.*
Pattison, Morgan Martin,	*Superior.*
Pederson, Einar,	*Cashton.*
Pelton, Glenn Edgar,	*Baraboo.*
Pelton, Guy Meredith,	*Baraboo.*
Perry, John Laird,	*Algoma.*
Peters, Adolf Charles Edward	*Wonewoc.*
Reukauf, William Henry,	*Racine.*
Riemer, Herbert Louis,	*Clinton.*
Rightor, Chester Edward,	*Rockford, Ill.*
Rogers, Harlan Bethune,	*Portage.*
Ross, Thompson,	*Rensselaer, Ind.*
Sato, Kinichi,	*Milwaukee.*
Schwalm, Arthur Leonard,	*Oshkosh.*
Schwandt, Robert Henry,	*Appleton.*
Shankland, Andrew Daniel,	*Chicago, Ill.*
Shibata, Genkwan,	*Toyama, Japan.*
Siefert, Hugo Herbert,	*Reedsburg.*
Sproesser, Jacob Weber,	*Watertown.*
Stair, Theodore Preston,	*Lake Mills.*
Stoppenbach, Reed Charles,	*Jefferson.*
Suter, James Williamson,	*Menomonie.*
Syftestad, Ole Selmer,	*Madison.*
Thompson, Alva Samuel,	*Madison.*
Tinker, Frank Bernard,	*Mazomanie.*
Vaughan, Jay Russell,	*Rhinelander.*
Wheelock, George R.,	*Peoria, Ill.*
Wheelock, Ralph Wadsworth,	*Peoria, Ill.*
Wilkins, Alma Lee,	*Viroqua.*
Wilkins, Benona Charles,	*Walworth.*
Wilkins, Milford Alvah,	*Clinton.*
Windfelder, Raymond Andrew,	*Milwaukee.*

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Wright, Cleveland Ely,	*Marinette.*
Zimmerman, Alfred Herman,	*Wausau.*

—401

ADULT SPECIAL STUDENTS

Anderson, Carl Tesch,	*Milwaukee.*
Anderson, Minnie Lena,	*Viola.*
Bartelt, George,	*Milwaukee.*
Beath, Orville Andrew,	*Verona.*
Beebe, Matthew Ross,	*Madison.*
Bertrand, Maurice Clement,	*Milwaukee.*
Bobo, Mildred Elnora,	*Ladysmith.*
Broughton, Ray,	*Evansville.*
Brunk, Vena Clifford,	*Chicago, Ill.*
Cary, Myra Treat,	*Madison.*
Clifford, Edith Adelaide,	*Madison.*
Crook, Mary Theresa.	*Madison.*
Cullen, Edwin Alexander,	*Madison.*
Cunningham, Walter Phinney,	*North Freedom.*
Davis, Ardelia Barbara,	*Madison.*
Dougherty, Lillian Rhea,	*Madison.*
Elmer, Edward W.,	*Kellnersville.*
Fieldhouse, Myrtle Carrie,	*Livingston.*
Filzen, Paul, Jr.,	*Osceola.*
Flisch, Julia Anna,	*Augusta, Ga.*
Franke, Meta Elise,	*Milwaukee.*
Gardner, Laura,	*Chicago, Ill.*
Garrett, William Minor,	*Madison.*
Genske, Anna Marie,	*Waukesha.*
Glen, Mary Alice,	*Madison.*
Hoffman, Arthur,	*Brookfield.*
Holty, Martin Nuell,	*Madison.*
Hookstadt, Carl	*Madison.*
Hoyt, Florence Hastings,	*Chicago, Ill.*
Jackson, James Albert, Jr.,	*Madison.*
Jacobs, Will Cassoday,	*Madison.*
Johnson, Margaret Isabel,	*Sheridan.*
Jordan, Sada M.,	*Madison.*
Kadel, Benjamin Clinton,	*Madison.*
Kalmbach, Mabel Lorena,	*Sturgeon Bay.*
Lamphere, Harry Leroy,	*Madison.*
Langlois, Emrette Davis,	*Humbolt, Ia.*

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Ludlow, Fritz,	*Waukesha.*
Lyons, Nettie Regina,	*Madison.*
Main, Lois Stillman,	*Madison.*
McNally, Monroe Driesbach,	*Richland Center.*
Pace, Siedler Nelson,	*Madison.*
Parkinson, Myra,	*Madison.*
Pease, Grace Bostwick,	*Madison.*
Phillips, Ellis George,	*Germania.*
Proctor, Ermina Belle,	*Madison.*
Puffer, Virginia Austin,	*Ashland.*
Pynch, Jenner Alfred,	*Madison.*
Rahfield, Augusta Margaret,	*Madison.*
Reed, Mary Rachel,	*Ida Grove, Ia.*
Retelstorf, Caroline Dorothea,	*Menomonie.*
Riley, Miles Charles,	*South Milwaukee.*
Roberts, Frank Lee,	*Merrimac.*
Robertson, Arthur Hampton,	*Bowen, Ill.*
Robson, James Alexander,	*Owatonna.*
Rudolph, William Thomas,	*Juneau.*
Schneider, William Henry,	*Oshkosh.*
Sessford, Bertha Helen,	*Madison.*
Shinn, Nora Gladys,	*Madison.*
Shreffler, Arthur Lee,	*Joliet,, Ill.*
Shuttleworth, Margaret May,	*Madison.*
Sloanaker, Sarah Elizabeth,	*Milwaukee.*
Smith, Maud Emily,	*Madison.*
Stocking, Earl Daniel,	*Madison.*
Stocking, Grace Alphretta,	*Madison.*
Stoehr, Joseph,	*Lynxville.*
Webb, William Pardon,	*Verona.*
Wellman, Lulu Delle,	*Madison.*
White, Genevieve Juneau,	*Milwaukee.*
Willas, Ester,	*Milwaukee.*
Williams, Alfred Edward,	*Beloit.*
Wilson, Mazie Agnes,	*Cherokee, Ia.*
Winden, Guida Constance,	*Madison.*

ADULT SPECIAL STUDENTS, COURSE IN COMMERCE

Atwell, William Ensign,	*Stevens Point.*
Head, Frank Murray,	*Madison.*
Kennedy, Lucius Ellsworth,	*Janesville.*

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Long, Arthur Edwin,	*Lawton, Okla.*
McCormick, Robert Alan,	*Tacoma, Wash.*
Mercer, Frank Campbell,	*Chicago, Ill.*
Miller, John Bernard,	*Lyndon.*
Preston, Charles Herbert,	*Westfield.*
Schoenwetter, Theodore Henry,	*Juneau.*

—82

Course in Pharmacy

FOUR YEAR COURSE

Du Mez, Andrew Grover,	*Cashton,*	Senior.
Kendell, William Henry,	*Waukesha,*	Freshman.
Schmidt, Fred August,	*Wausau,*	Senior.
Schulz, Raymond Louis,	*Milwaukee,*	Sophomore.
Sievers, Arthur Frederick,	*New Holstein,*	Junior.

TWO YEAR COURSE

Armstrong, Henry Clay,	*Ashland,*	Second year.
Davis, Henry,	*Madison,*	Second year.
Dustin, Leslie Burtrand,	*Peoria, Ill.,*	Second year.
Fluck, James William,	*Washburn,*	First year.
Garvey, William Aloysius,	*Seneca,*	Second year.
Glennon, Edward Charles,	*Stevens Point,*	First year.
Goetz, Walter Fred,	*Milwaukee,*	Second year.
Graw, Paul,	*Cashton,*	Second year.
*Jährling, Valeriocy Cala,	*Manila, P. I.,*	First year.
Lamphere, Rodney Otis,	*Madison,*	First year.
McDaniel, Clarence,	*Soldiers Grove,*	First year.
Price, Guerdon White,	*Waukegan, Ill.,*	First year.
Ramsey, George Harcout,	*Reedsburg,*	Second year.
Richmond, Earl Dewitt,	*Eagle River,*	Second year.
Rimsnider, Walter Henry,	*Madison,*	Second year.
Russell, Harold Clark,	*Madison,*	First year.
Rux, Ferdinand George,	*Rib Falls,*	First year.
Schanel, Raymond John,	*Black Earth,*	First year.
Smith Hermione,	*River Falls*	Second year.
*Sorley, Stanley Manleus,	*Weyauwega,*	Second year.
Swenholt, John,	*Madison,*	First year.
Titus, Martin Edwin,	*Sparta,*	First year.
Ulve, Lewis,	*Boscobel,*	Second year.

*Taking three-year course.

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Van Hengel, Arnold,	*Waupun,*	First year.
VanWie, Edward Carlton,	*Mauston,*	First year.
Williams, Guy Willis,	*Soldiers Grove,*	First year.

—31

College of Engineering

SENIOR CLASS

Allen, Maynard Edward,	*Indianapolis, Ind.,*	C. E.
Baldwin, William Gage,	*Sparta,*	M. E.
Balsom, Amos Parker,	*Hudson,*	E. E.
Barker, Harold Jean,	*Madison,*	C. E.
Bates, William Ensign,	*Madison,*	C. E.
Bertke, Wilson Arthur,	*Milwaukee,*	E. E.
Beye, Cudworth,	*Oak Park, Ill.,*	M. E.
Biersach, Rudolph,	*Milwaukee,*	M. E.
Bradshaw, John Ward, Jr.,	*Superior,*	E. E.
Buchanan, John William,	*Madison,*	C. E.
Burling, Beverly Burdette,	*Madison,*	Ch. E.
Bush, James Irving,	*Racine,*	G. E.
Byers, Vernon Clyde,	*Madison,*	E. E.
Cade, Orpheus Blaine,	*Viroqua,*	E. E.
Calvin, Carl J.,	*Lancaster,*	C. E.
Conway, William Malcolm,	*Madison,*	G. E.
Davidson, Paul Edward,	*Green Bay,*	E. E.
Davis, Ralph Emerson,	*Des Moines, Ia.,*	G. E.
Delgado, Alan Edgar,	*Kingston, Jamaica,*	E. E.
Delgado, Altamont,	*Kingston, Jamaica,*	E. E.
Derge, Matthias Louis,	*Eau Claire,*	E. E.
Dering, Charles Maxwell,	*Madison,*	C. E.
Dunlap, Guy Lewis,	*Mazomanie,*	G. E.
Elmore, Samuel Eltinge,	*Milwaukee,*	M. E.
Eskuche, Oscar Arthur,	*Milwaukee,*	M. E.
Falk, Harold Sands,	*Milwaukee,*	G. E.
Feige, Heinrich,	*Madison,*	E. E.
Fisher, Frank Eugene,	*Madison,*	E. E.
Flagg, William Henry,	*New Lisbon,*	E. E.
Ford, Ralph Henry,	*Sparta,*	E. E.
Foster, Dean Edward,	*Madison,*	M. E.
Gormley, John Henry,	*Ft. Atkinson,*	G. E.
Hardacker, Raymond James,	*Appleton,*	E. E.
Harrop, James Lawrence,	*Fond du Lac.*	G. E.

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Hart, Julan George,	*Gillingham,*	G. E.
Harza, Le Roy Francis,	*Madison,*	C. E.
Heller, Harry Leopold,	*Milwaukee,*	E. E.
Herdegan, Robert Townsend,	*Milwaukee,*	E. E.
Hoefer, Alfred Ulysses,	*Freeport, Ill.,*	M. E.
Hoelz, John Bernhard,	*Burlington,*	E. E.
Hosig, Irvin Benjamin,	*Hartford,*	C. E.
Howson, Elmer Thomas,	*Madison,*	C. E.
Hull, Irving Weslie,	*Antigo,*	E. E.
Hunt, Henry James,	*Stoughton,*	C. E.
Jacobson, Jesse Ernest,	*Clinton Junction,*	G. E.
Jenista, George John,	*Racine,*	E. E.
Johnson, Arden Richard,	*Stoughton,*	Ch. E.
Johnson, Frederick May,	*Tunnel City,*	C. E.
Johnson, Guy Maxwell,	*West Salem,*	M. E.
Kearney, Edgar,	*Springfield, Mo.,*	M. E.
Kennedy, Frank Albert,	*Merrill,*	C. E.
Keyes, Dudley Hyde,	*Madison,*	E. E.
Kirk, Allen Taylor,	*Madison,*	M. E.
Kommers, Jesse Benjamin,	*Sheboygan,*	E. E.
Kowalke, Otto Louis,	*South Kaukauna,*	Ch. E.
La Dow, Carl Vern,	*Sandusky, O.,*	M. E.
Larkin, Fred Viall,	*Verona,*	G. E.
Lawrence, Francis Wolcott,	*Sheboygan,*	C. E.
Lawrence, Frank Henry,	*Madison,*	G. E.
Legreid, Herman Nicholas,	*Stoughton,*	Ch. E.
Lohneis, George Henry,	*Sun Prairie,*	C. E.
Lowe, Edgar Allan,	*Colgate,*	E. E.
Manchester, Thomas Harris,	*Milwaukee,*	M. E.
Manegold, Robert Albert,	*Milwaukee,*	M. E.
Marks, Frederick Robert,	*Chicago, Ill.,*	E. E.
McCoy, Lloyd Baxter,	*Milwaukee,*	E. E.
Mead, Warren Judson,	*Plymouth,*	G. E.
Miller, Ernest Baldwin,	*Westminster, Md.,*	E. E.
Miller, William Boyd,	*Pittsburg, Pa.,*	G. E.
Moser, Albert Leo Brecht,	*Cripple Creek, Colo.,*	C. E.
Noe, Edgar James,	*Madison,*	E. E.
Parker, Frank Ingram,	*Mondovi,*	E. E.
Parker, Howard Ashley,	*Milwaukee,*	C. E.
Parker, Wilfred Cedric,	*Milwaukee,*	G. E.
Pease, Bernard Snell,	*Richland Center,*	C. E.

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Peck, Bertine Hila,	*Berlin*,	E. E.
Rath, William Charles,	*Appleton*,	C. E.
Read, Benjamin Killey,	*Lake Geneva*,	M. E.
Reid, John Winfield,	*Oconomowoc*,	C. E.
Reynolds, Ira Lambert,	*Mineral Point*,	E. E.
Rickeman, Frederick Henry,	*Racine*,	E. E.
Ripley, Russell Rosier,	*Oakfield*,	M. E.
Robertson, Lawrence Bernard,	*Ft. Atkinson*,	M. E.
Rosier, Frank Burdette,	*Hartford*,	E. E.
Rossing, Adolph Hjalmar,	*Argyle*,	C. E.
Russell, Webber Sands,	*La Crosse*,	M. E.
Sacket, Walter Hobart,	*Berlin*,	C. E.
Saubert, Henry Michael,	*South Kaukauna*,	M. E.
Scheuer, Charles Henry,	*Mischicot*,	C. E.
Shadbolt, Loomis James,	*Sheboygan*,	G. E.
Smith, Lloyd Lyman,	*Madison*,	E. E.
Smith, William Hooper,	*Baltimore, Md.*,	G. E.
Snow, William Mathews,	*Mineral Point*,	G. E.
Sorem, Alfred Julius,	*Moose Lake, Minn.*,	E. E.
Stock, Harry,	*Madison*,	C. E.
Strait, Edward Nathan,	*Sparta*,	E. E.
Sustins, Walter Otis,	*Stevens Point*,	E. E.
Terhorst, Harvey,	*Milwaukee*,	E. E.
Terhorst, Stephen,	*Milwaukee*,	E. E.
Thorne, Jent George,	*Clinton, Ia.*,	C. E.
Thwing, Charles Clark,	*Minneapolis, Minn.*,	E. E.
Trester, Anthony Matthew,	*Sheboygan*,	C. E.
Van Hagan, Arthur Edward,	*Madison*,	E. E.
Van Hook, Wendell Alexander,	*Pittsburg, Pa.*,	C. E.
Wachtman, Edmund Louis Charles,	*Milwaukee*,	M. E.
Walsh, Arthur Jeremiah,	*Stanton*,	E. E.
Warren, Wyman Edgar,	*Stoughton*,	E. E.
Wetzler, William Henry,	*Beloit*,	C. E.
Whelan, Thomas C.,	*Chippewa Falls*,	E. E.
Wheeler, Roy Alvah,	*Milwaukee*,	E. E.
Wild, Edward Charles,	*Mayville*,	C. E.
Wright, Allen Edgar,	*Perrysburg, N. Y.*,	C. E.
Youngblutt, Frederick Carl,	*Middleton*,	C. E.

—113

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JUNIOR CLASS

Anthony, Rowland Barney,	*Kewaunee, Ill.,*	E. E.
Arndt, Reuben Field,	*De Pere,*	M. E.
Bailey, Robert William,	*Des Moines, Ia.,*	M. E.
Bechlem, Alfred William,	*Plymouth,*	E. E.
Bennett, Benjamin Franklin, Jr.,	*Baltimore, Md.,*	G. E.
Bennett, Vivian Andrews,	*Madison,*	G. E.
Blackburn, Fred M.,	*Verona,*	E. E.
Bleyer, Charles Faben,	*Milwaukee,*	M. E.
Bock, John George,	*Manitowoc,*	C. E.
Boylston, Arthur William,	*Chicago, Ill.,*	M. E.
Brown, Edwin Stanton,	*Indianapolis, Ind.,*	C. E.
Bryant, John Owen,	*Chippewa Falls,*	G. E.
Burgess, Edward Wesley,	*Chicago, Ill.,*	M. E.
Chapman, Louis Leon,	*Milwaukee,*	C. E.
Clark, Albert Barnes, Jr.,	*Madison,*	C. E.
Clark, Stewart Lambert,	*Milwaukee,*	C. E.
Compton, Arthur Mandeville,	*Madison,*	G. E.
Cortelyou, George Stilwell,	*Brodhead,*	C. E.
Cutler, Manuel,	*Dodgeville,*	M. E.
Dean, Joseph Edward,	*Milwaukee,*	E. E.
Decker, Paul Herman,	*La Moile, Ill.,*	E. E.
Derge, Ferdinand Julius,	*Eau Claire,*	E. E.
Diehl, Alfred Samuel,	*Madison,*	C. E.
Diestler, Gilbert Albert,	*Hortonville,*	C. E.
Donohue, Jerry, Jr.,	*Sheboygan,*	C. E.
Eagle, Celestine Clement, Jr.,	*Union Center,*	E. E.
Ebert, Frederick Charles,	*Tomah,*	C. E.
Edmund, Charles Edward,	*Fond du Lac,*	M. E.
Egelhoff, Robert Fred,	*Milwaukee,*	M. E.
Estberg, Howard Cloes,	*Waukesha,*	E. E.
Field, Guy Alden,	*Sharon,*	M. E.
Fisher, Arthur Augustus,	*Beaver Dam,*	C. E.
Fleischer, Henry Bernhard,	*Milwaukee,*	M. E.
Freeman, William James,	*Horicon,*	M. E.
Freschel, William Walter,	*Milwaukee,*	G. E.
Gaarden, Oscar H.,	*Spring Valley,*	E. E.
Gattiker, Willis Alfred,	*Baraboo,*	E. E.
Gelbach, Warren Allen,	*Lancaster,*	C. E.
Gielow, Edwin Herman,	*Manitowoc,*	E. E.
Glab, William Nicholas,	*Dubuque, Ia.,*	M. E.

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Goedjen, Albert John,	*Manitowoc,*	E. E.
Green, Charles William,	*Chicago, Ill.,*	E. E.
Green, Daniel,	*Whitewater,*	Ch. E.
Greisen, Elijah Charles,	*Sturgeon Bay,*	M. E.
Grunert, Arthur Earl,	*Chicago, Ill.,*	G. E.
Haertel, Carl Frederick,	*Madison,*	Ch. E.
Hatch, Samuel Reuben,	*Appleton,*	C. E.
Heebink, Garret Egbert,	*Baldwin,*	C. E.
Henderson, Dwight Firman,	*Indianola, Ia.,*	E. E.
Hibbard, Allen Charles,	*Milwaukee,*	E. E.
Higson, Charles Roy,	*Madison,*	M. E.
Hine, Willard Foster,	*Fairchild,*	E. E.
Hirschberg, Ernest Samuel,	*Milwaukee,*	M. E.
Holmes, Horace Mars,	*Galesburg, Ill.,*	C. E.
Holt, Thomas,	*Milwaukee,*	E. E.
Hubbard, Edwin Palmer,	*Milwaukee,*	E. E.
Ingals, Francis Ephraim,	*Chicago, Ill.,*	G. E.
Janssen, Walter Arion,	*Davenport, Ia.,*	G. E.
Johnson, Paul Browning,	*Madison,*	C. E.
Kachel, William Frederick,	*Baraboo,*	C. E.
Kehr, Carl Merriman,	*Sterling, Ill.,*	Ch. E.
Keller, Arthur Edwin,	*Spring Green,*	M. E.
Ketchum, Harold Edwin,	*Madison,*	C. E.
Ketchum, Wesley Merritt,	*Madison,*	E. E.
Klug, John Frederick,	*Arcadia,*	E. E.
Knuth, Tony Byron,	*Fairchild,*	C. E.
Kohn, Alvin John,	*Reeseville,*	E. E.
Kortebein, Hugo William,	*Milwaukee,*	E. E.
Kruse, Harry,	*Freeport, Ill.*	G. E.
La Roy, Herbert Arthur, Jr.,	*Chicago, Ill.,*	C. E.
Leasman, Emil Leo,	*Boscobel,*	Ch. E.
Lewis, Evariste Martel,	*Madison,*	G. E.
Lieber, William Henry,	*Milwaukee,*	M. E.
Loesch, Richards Llewellyn,	*Chicago, Ill.,*	E. E.
Lucas, Thomas Joseph,	*Madison,*	E. E.
Mainland, John,	*Racine,*	M. E.
McCulloch, John Alexander,	*Madison,*	G. E.
McLean, Harry Clayton,	*Madison,*	M. E.
Meadowcroft, Miner T.,	*Poynette,*	C. E.
Middleton, Owen William,	*Madison,*	E. E.
Mills, John McCuen,	*Milwaukee,*	C. E.

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Moore, Charles Gilbert,	*Eau Claire,*	C. E.
Newcomb, Maron Watson,	*Madison,*	E. E.
Newton, George Cheney,	*Milwaukee,*	M. E.
Nordberg, Bruno Victor Edward,	*Milwaukee,*	M. E.
Olson, Norman T.,	*Tomahawk,*	C. E.
Osgood, Charles,	*Oak Park, Ill.,*	M. E.
Palmer, Edward Albert,	*Janesville,*	E. E.
Parker, Eustace Edwin Franklin,	*Evansville,*	C. E.
Peck, Orwin K.,	*Mitchell, S. D.,*	C. E.
Penn, William Clay,	*Juda,*	C. E.
Peters, Herbert John,	*Sharon,*	C. E.
Pfannstiehl, Jean Jacques,	*Baraboo,*	G. E.
Powell, David Alva,	*Madison,*	E. E.
Pulver, Harry E.,	*Viroqua,*	G. E.
Rahn, Bruno,	*Milwaukee,*	M. E.
Reinhard, Louis Ferdinand,	*Milwaukee,*	E. E.
Richter, Edward Rand,	*Milwaukee,*	G. E.
Rowe, Wilfred Lincoln,	*Eau Claire,*	C. E.
Rudy, Ora Herman,	*Indianapolis, Ind.,*	C. E.
Sanford, Herbert Brooks,	*Madison,*	E. E.
Sargent, Julian Downing,	*Milwaukee,*	M. E.
Schroeder, Frank Charles,	*Madison,*	C. E.
Severson, Stephen Benjamin,	*Stoughton,*	E. E.
Sherman, Lewis, Jr.,	*Milwaukee,*	G. E.
Shuck, Ebright Rolland,	*Davenport, Ia.,*	C. E.
Simon, Edward Montefaire,	*Pueblo, Colo.,*	E. E.
Simpson, James Frederic,	*Chicago, Ill.,*	G. E.
Smeaton, Charles Alexander,	*Whitewater,*	E. E.
Smith, Jack Morgan,	*Madison,*	C. E.
Smith, Orrin Cheney,	*Clinton,*	C. E.
Sperry, David Rockwell,	*Batavia, Ill.,*	M. E.
Stearns, Edward Wording,	*Madison,*	C. E.
Steenrod, Terrill Finney,	*Freeport, Ill.,*	E. E.
Stoelting, Roland Emil,	*Oconto,*	C. E.
Tarr, John Cecil,	*New Auburn,*	E. E.
Teschan, Walter Frohsinn,	*Milwaukee,*	M. E.
Thayer, Benjamin Single,	*Ripon,*	C. E.
Thiel, Bruno Carl,	*Milwaukee,*	G. E.
Thomas, Edward Anderson,	*Waukesha,*	E. E.
Thompson, Louis Mark,	*Madison,*	E. E.
True, Henry Alfonsa, Jr.,	*Denver, Colo.,*	C. E.

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Uihlein, Oscar Louis,	*Milwaukee,*	E. E.
Wachenfeld, Stephen Charlemagne,	*Milwaukee,*	M. E.
Wadsworth, William John,	*Kansas City, Mo.,*	M. E.
Wagner, George Ernst,	*Fond du Lac,*	E. E.
Ward, Louis Edward,	*Ft. Atkinson,*	Ch. E.
Warner, Frank Melville,	*Fountain City,*	M. E.
Wessel, Frederick Charles Ernest,	*Milwaukee,*	G. E.
Wetlaufer, Ervin Hudson,	*Oshkosh,*	M. E.
Whiteside, Samuel Porter,	*Bell Buckle, Tenn,*	M. E.
Whitmore, Joseph Bond,	*Mukwonago,*	M. E.
Whitney, Alden Bradford,	*Madison,*	C. E.
Wied, John Clifford,	*Waupaca,*	M. E.
Wilcox, Edwin McArthur,	*Ft. Atkinson,*	E. E.
Winkler, William Kneeland,	*Milwaukee,*	M. E.
Wolff, Julius Fred,	*Cumberland,*	C. E.
Zapffe, Carl,	*Milwaukee,*	G. E.
Zwolanek, Joseph,	*Muscoda,*	M. E.
		—139

SOPHOMORE CLASS

Abbott, Ellis Pitt,	*Madison,*	C. E.
Abbott, Harry Scott,	*Madison,*	G. E.
Anderson, Victor Roy,	*Janesville,*	M. E.
Atkinson, Sheridan Knox,	*Eau Claire,*	C. E.
Ball, Edwin Marcotte,	*Madison,*	G. E.
Bandli, Edward Mitchell,	*Rice Lake,*	C. E.
Barth, Louis John,	*Milwaukee,*	M. E.
Bartlett, Ferdinand von Arlt,	*Milwaukee,*	G. E.
Beasley, Phineas Welles,	*Carrington, N. D.,*	C. E.
Beasley, William Howard,	*Texarkana, Ark.,*	E. E.
Becker, John Walter,	*Chicago, Ill.,*	C. E.
Becker, Walter Eugene,	*Chicago, Ill.,*	M. E.
Been, Charles Henry,	*Milwaukee,*	M. E.
Billings, Carl Emery,	*Cobb,*	E. E.
Birkett, Miles Wren,	*Mahnomen, Minn.,*	E. E
Birkholz, Edwin Reynolds,	*Milwaukee,*	E. E.
Blankenburg, Herbert Louis,	*Milwaukee,*	G. E.
Blatz, Albert Valentine,	*Milwaukee,*	E. E.
Bragg, Chester Homer,	*Lake Mills,*	M. E.
Brandel, Clarence Oliver,	*Milwaukee,*	E. E.
Brown, Paul Vincent,	*Racine,*	C. E.
Buchecker, Albert Israel,	*Madison,*	E. E.

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Buetow, Walter Charles,	*Milwaukee,*	C. E.
Burch, George Francis,	*Urbana, Ill.,*	C. E.
Byron, Charles Loomis,	*Milwaukee,*	E. E.
Caldwell, Walter Gaynor,	*Pewaukee,*	C. E.
Cerna, Santiago,	*Nadodores, Coah, Mex.,*	C. E.
Cheney, Charles Albert, Jr.,	*Madison,*	G. E.
Cleary, John Edward,	*Antigo,*	E. E.
Comer, Ragner Otolis,	*St. Croix Falls,*	M. E.
Conlin, William Henry,	*Madison,*	E. E.
Conway, Jesse Frank,	*Antigo,*	E. E.
Cooper, Marion Deane,	*Black River Falls,*	E. E.
Copp, Wayland John,	*Madison,*	M. E.
Crumb, Kittridge Bennett,	*Rockford, Ill.,*	E. E.
Cummings, Alvin Truman	*Duluth, Minn.,*	E. E.
Cunningham, John Wilbur,	*Madison,*	C. E.
Daenitz, Ottomar Paul Theodore,	*Ashland,*	E. E.
Dahl, Chester Theodore,	*Westby,*	C. E.
Daniels, George Christian,	*Freeport, Ill.,*	M. E.
Davila, Lorenzo Juan,	*Juana Diaz, Porto Rico,*	C. E.
Dennis, Thomas Henry,	*Madison,*	C. E.
Dick, Roy Ingles,	*Oregon,*	E. E.
Disque, Robert Conrad,	*Burlington, Ia.,*	E. E.
Edwards, James McCosh,	*Waterloo, Ia.,*	M. E.
Evans, Bertrand	*Spring Green,*	M. E.
Faber, Merle Everitt,	*Mendota, Ill.,*	M. E.
Fay, Earl Owen,	*De Kalb, Ill.,*	G. E.
Fermann, Wilhelm Elbert,	*Stoughton,*	M. E.
Field, Forrest Whipple,	*Sharon,*	M. E.
Fisher, Samuel Morton ,	*Delavan,*	C. E.
Fox, Edwin Gordon,	*Madison,*	E. E.
French, Chester Frank,	*Madison,*	E. E.
Frost, Frank Summer,	*Evansville,*	G. E.
Gayton, Oscar Francis,	*Madison,*	C. E.
Gibson, Walter Gordon,	*Fond du Lac,*	M. E.
Gillespie, James Edward,	*Stockbridge,*	C. E.
Gillet, Orson Clarke,	*Superior,*	C. E.
Graff, Bjarne Halfdan,	*Seattle, Wash.,*	C. E.
Gray, Glenn Arthur,	*Oregon,*	E. E.
Greenleaf, Warren Theodore,	*Milwaukee,*	E. E.
Grenamyer, Arthur Garfield,	*Madison,*	E. E.
Grodske, Walter John, Jr.,	*Milwaukee,*	C. E.

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Gross, Edward Lascar,	*Milwaukee,*	E. E.
Gross, George Louis,	*Stevens Point,*	C. E.
Haas, Felix Harold,	*Butler, Ill.,*	E. E.
Hackett, Charles William,	*Dubuque, Ia.,*	E. E.
Hague, Franklyn Louis,	*Lake Mills,*	C. E.
Hain, Elmer Lamont,	*Edgerton,*	C. E.
Halbert, Charles Arthur,	*Madison,*	C. E.
Halliday, Malcolm John,	*Riverside, Ill.,*	M. E.
Hambrecht, Albert Lewis,	*Middleton,*	C. E.
Harper, Harry M.,	*Waterloo, Ia.,*	E. E.
Hart, Simeon Thompson,	*Madison,*	M. E.
Hartman, Lawrence Merle,	*Tyrone,*	C. E.
Hasbrouck, David Marks,	*Dobbs Ferry, N. Y.,*	G. E.
Hayes, Michael Thomas,	*Janesville,*	C. E.
Hejda, Joseph William,	*Manitowoc,*	C. E.
Henry, Otto Raymond,	*Viroqua,*	C. E.
Heyroth, Albert Herman,	*Manitowoc,*	E. E.
Hills, Earl Vinton,	*Waupun,*	E. E.
Hillyer, Raymond Hobart,	*Merrill,*	E. E.
Hinckley, Dana Alexander,	*Winneconne,*	E. E.
Hirsch, John George,	*Milwaukee,*	C. E.
Hodges, Paul,	*Monroe,*	E. E.
Hoffmann, Arthur William,	*Sheboygan,*	E. E.
Hosler, Harry,	*Reedsburg,*	E. E.
Howson, Louis Richard,	*Madison,*	C. E.
Huntley, Lee Harvey,	*Neillsville,*	C. E.
Ives, Frederick Walter,	*Rubicon,*	M. E.
Jerrard, Leigh Patterson,	*Superior,*	C. E.
Johns, Edward Francis,	*Madison,*	M. E.
Johnson, Chester Nels,	*Chicago, Ill.,*	E. E.
Kalmbach, Maurice Frederick,	*Sturgeon Bay,*	E. E.
Kaulfuss, Julius Ernest,	*La Crosse,*	C. E.
Kennedy, Frank M.,	*Hinckley, Ill.,*	C. E.
Kenzler, Frank William,	*Cambridge,*	E. E.
Kifer, Edwin Henry,	*Spring Green,*	E. E.
Kildsig, Gustav Esperson,	*Racine,*	M. E.
Kislingbury, Henry George,	*Mineral Point,*	E. E.
Kline, Jacob John,	*South Kaukauna,*	E. E.
Kuelling, Herbert John,	*Shullsburg,*	C. E.
Knudsen, Louis,	*Superior,*	C. E.
Kuentz, Oscar Otto,	*Milwaukee,*	M. E.

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Kuhl, Herman Charles,	*Neillsville,*	C. E.
Küstermann, Walter Wolleben,	*Madison,*	E. E.
Lautz, George Henry,	*La Crosse,*	C. E.
Leete, Dwight Godrich,	*Madison,*	G. E.
Lehman, Leo Otto,	*Green Bay,*	E. E.
Lindemann, Walter Carl,	*Milwaukee,*	M. E.
Liver, Harold Allen,	*Wonewoc,*	C. E.
Lloyd, Emrys J.,	*Cambria,*	E. E.
Lokke, Julius Henry,	*Baldwin,*	E. E.
Lunde, Sigurd Gilbertson,	*Wausau,*	C. E.
Lutze, Henry Fred,	*Sheboygan,*	E. E.
Marsh, Henry Oalus,	*Lake Geneva,*	M. E.
Mathews, William Wyman,	*De Pere,*	C. E.
McComb, Ross Kenneth,	*Brillion,*	G. E.
McDougall, Colin,	*Whitewater,*	M. E.
Melcher, Austin Gove,	*Hinsdale, Ill.,*	M. E.
Merrill, Edward Cressey,	*Oneida,*	C. E.
Meyer, Henry William, Jr.,	*Appleton,*	E. E.
Miller, Daniel Webster,	*Somers,*	M. E.
Milliren, Barton Leroy,	*Pepin,*	M. E.
Morgan, Alexander William,	*Madison,*	E. E.
Moriarty, Eugene Winfield,	*Elroy,*	E. E.
Morrison, Harry Irwin,	*Eau Claire,*	E. E.
Mott, Charles Smith,	*Milwaukee,*	E. E.
Mumm, Edward Franklin,	*Wausau,*	E. E.
Nelson, Oscar Herman,	*Stoughton,*	C. E.
Neubauer, Frank John,	*De Pere,*	E. E.
Nicholson, Delos Charles,	*Edgerton,*	C. E.
North, Kent Beaugrande,	*Cleveland, O.,*	M. E.
Olson, Engwall,	*Marinette,*	E. E.
Osborne, Robert Charles,	*Milwaukee,*	M. E.
Outzen, Andrew Newton,	*Madison,*	E. E.
Paesler, Fred Edward,	*Chicago, Ill.,*	E. E.
Palmer, Guy Hageman,	*Sparta,*	E. E.
Perwien, Richard,	*Milwaukee,*	C. E.
Petrie, Walter,	*Fond du Lac,*	G. E.
Phelps, Harlow Donnell	*Denver, Colo.,*	E. E.
Pitz, Arthur Herman,	*Manitowoc,*	C. E.
Platten, William Joseph,	*Green Bay,*	E. E.
Porter, Lloyd Wardall,	*Evansville,*	C. E.
Porter, Warren Newman,	*Evansville,*	C. E.

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Post, Harold Lorenzo,	*Weyauwega,*	E. E.
Post, Herbert Lee,	*Black River Falls,*	C. E.
Reed, James Olan,	*Madison,*	C. E.
Reinhard, Gustav Adolph,	*Milwaukee,*	E. E.
Reuter, Jackson John,	*Blue Mounds,*	C. E.
Rice, Clarence James,	*Milwaukee,*	C. E.
Rice, Ernest Frederic,	*Milwaukee,*	E. E.
Rich, Corydon Lawrence,	*Oshkosh,*	C. E.
Rideout, William Lovell,	*Madison,*	C. E.
Roberts, Earl Price,	*Oconomowoc,*	E. E.
Rogers, Sumner Barnes,	*Milwaukee,*	G. E.
Rosholt, John Nicholas,	*Oconomowoc,*	E. E.
Ryan, William Henry,	*Janesville,*	C. E.
Ryder, Gana Gustavus,	*Madison,*	E. E.
Schamell, Otto Alfred,	*Milwaukee,*	M. E.
Schlapkohl, Ferdinand,	*Davenport, Ia.,*	M. E.
Schuler, Frank Joseph,	*Milwaukee,*	M. E.
Schwede, Frederick August,	*Sawyer,*	C. E.
Scribner, Charles Archibald,	*Fond du Lac,*	E. E.
Seibel, Raymond,	*Highland,*	E. E.
Semple, James Renwick,	*Hudson,*	E. E.
Semrad, Charles Albert,	*Highland,*	E. E.
Shapiro, Joseph,	*Antigo,*	E. E.
Sheldon, Thomas Drummond	*Darlington,*	E. E.
Shepherd, Claude Harold,	*Texarkana, Ark.,*	E. E.
Sherman, John Rockwood,	*Brodhead,*	C. E.
Shorey, Edwin Royal,	*Oshkosh,*	C. E.
Simonds, Herbert Rumsey,	*Chicago, Ill.,*	M. E.
Slater, Charles James,	*Escanaba, Mich.,*	M. E.
Slayton, Clarence Hall,	*Madison,*	E. E.
Smith, Andrew Adelbert,	*Waterford,*	C. E.
Smith, Thomas Wrenne,	*Milwaukee,*	C. E.
Solberg, Arthur Leroy,	*Beloit,*	M. E.
Spencer, Fred Lewis,	*Waupaca,*	E. E.
Steinfort, Carl Edward,	*Ephraim,*	E. E.
Stevenson, Thomas Downey,	*Indianapolis, Ind.,*	C. E.
St. George, Arthur Baldwin,	*Nashota,*	E. E.
Strait, Albert Lea,	*Madison,*	C. E.
Suhm, Erwin Roman,	*Milwaukee,*	E. E.
Thompson, Percy Ball,	*Madison,*	G. E.
Tibbits, Fayette Amor,	*Hingham,*	E. E.

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Tierney, John Thomas,	*Woodland,*	M. E.
Urbutt, Carl Fred,	*Oconomowoc,*	M. E.
Van Derzee, Gould Whitney,	*Milwaukee,*	E. E.
Wadsworth, Melvin Ray,	*Lake Geneva,*	G. E.
Wahl, Louis Edward,	*Antigo,*	E. E.
Waite, Walter Edwin,	*Brooklyn,*	E. E.
Wallber, Hilbert Charles,	*Milwaukee,*	C. E.
Walser, Edward William,	*Austin, Ill.,*	M. E.
Weber, Cornelius George,	*Theresa,*	E. E.
Weber, William Gustave,	*Racine,*	C. E.
Weber, William Henry,	*Racine,*	C. E.
Webster, Harold,	*Columbus,*	C. E.
Wedlock, Frank Vivian,	*Mineral Point,*	E. E.
Wehausen, George Washington,	*Madison,*	E. E.
Wheeler, Harvey Babcock,	*Madison,*	E. E.
Wielebski, Edward Aloysius,	*Milwaukee,*	C. E.
Wieman, Henry Krumsick,	*Watertown,*	C. E.
Wiggins, Edward Ruger,	*Janesville,*	M. E.
Wilder, George Green,	*Chicago, Ill.,*	M. E.
Williams, Mark Levius,	*Milwaukee,*	G. E.
Wippermann, William,	*Chilton,*	M. E.
Witt, Louis,	*New Holstein,*	E. E.
Wyatt, George Moore,	*Fond du Lac,*	G. E.
Zeisler, George, Jr.,	*La Crosse,*	C. E.

—210

FRESHMAN CLASS

Arnold, Louis George,	*Eau Claire.*
Assel, John Fred,	*Waukesha.*
Balch, John,	*Marshalltown, Ia.*
Baldwin, Harry Sherman,	*Prophetstown, Ill.*
Balsley, Henry Edwin,	*Madison.*
Bartlett, Charles Lynn,	*Milwaukee.*
Bassett, William Beacher,	*Naples, N. Y.*
Bates, Floyd Elton,	*Mason City, Ia.*
Beitel, Roy Milton,	*Hinckley, Ill.*
Bell, George William,	*Tomah.*
Bennett, Arthur Earl,	*Centerville.*
Bennett, Benjamin Floyd,	*Jeannette, Penn.*
Berry, Hubert Clifton,	*Plainfield.*
Bertles, William Matthew,	*Green Bay.*
Binzel, Albert Valentine,	*Milwaukee.*

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Blodgett, Jerre Rusk,	*Wauwatosa.*
Boardman, Clark Clinton,	*New Richmond.*
Bockelmann, Bernhardt Jacob,	*Milwaukee.*
Boley, Arthur Leland,	*Sheboygan.*
Boyd, Stanley Mayo,	*Madison.*
Brackenwagen, Earl Charles,	*Blue Mounds.*
Brumder, Herbert Paul,	*Milwaukee.*
Buchanan, Arthur John,	*Rio.*
Buell, Theodore Thomas,	*Burlington.*
Bundy, Roy Gilbert,	*Milwaukee.*
Burgess, Kenneth Farwell,	*Oshkosh.*
Burritt, Charles Glenn,	*Mauston.*
Buser, John Thomas,	*Potosi.*
Butler, Milton Carroll,	*Virginia, Minn.*
Caldwell, Leigh W.,	*Waupun.*
Campbell, Hugh Morton,	*Neillsville.*
Carnes, William Eugene,	*Watertown, N. Y.*
Charles, Edward Sanford,	*Lake Geneva.*
Church, Ernest Clinton,	*Allenville.*
Coleman, Alfred Freude,	*Chippewa Falls.*
Colladay, Edgar Bergman,	*Madison.*
Cook, Jay Walter,	*Bayfield.*
Cornell, Harold Edward,	*Kaukauna.*
Crowell, George G.,	*Almond.*
Cutler, Joseph Albert,	*Dodgeville.*
Davis, Sidney Hugh,	*Des Moines, Ia.,*
Dean, George Franklin,	*Milwaukee.*
Dean, Harry Jennings,	*Racine.*
Derby, Frank Walter,	*Marshfield.*
Didier, Russell Frank,	*Rhinelander.*
Dodds, John Hutchins,	*Milwaukee.*
Dodge, Paul Condé,	*Milwaukee.*
Drew, Harold Winthrop,	*Milwaukee.*
Druse, Harry Ashley,	*Reedsburg.*
Dutton, Byron Kaye,	*Waupaca.*
Edwards, Bruce Vincent,	*Bayonne, N. J.*
Edwards, Vernon Quan,	*Ashland.*
Egan, John Fabian,	*Ashland.*
Eldridge, Arthur Brooks,	*Indianapolis, Ind.*
Ely, Elmer Andreas,	*Mauston.*
Engsberg, Emil Ernest,	*Lake Mills.*

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Farley, Edward Philip,	*Madison.*
Fleming, Philip Bracken,	*Burlington, Ia.*
French, Don William,	*Portage.*
Fuller, Clifford,	*Madison.*
Furch, Armin Berthold,	*Milwaukee.*
Garner, Harrison Levi,	*Lancaster.*
Garnock, Alexander Richard,	*Tomah.*
Gates, Martin Jabo,	*Jefferson.*
Glaettli, John, Jr.,	*Milwaukee.*
Greene, Walter Cushing,	*Cleveland, O.*
Griggs, Ray Leslie,	*Portage.*
Griswold, Ernest Carl,	*Thomson, Ill.*
Haevers, William,	*Luxenberg.*
Hale, Fred Earl,	*Madison.*
Hall, Sidney Phillips,	*Madison.*
Hanson, Thomas Christian,	*Manitowoc.*
Harns, William Wightman,	*West Bend.*
Haskell, Sidney Cleveland,	*Chicago, Ill.*
Heath, Samuel Wild,	*Fond du Lac.*
Hidalgo, Marceliano,	*Binalonan, Pangasinan, P. I.*
Hintze, Philip Henry,	*Stoughton.*
Hitchcock, Frank Artemas,	*Edgerton.*
Holmes, William Raymond,	*Baldwin.*
Hope, Samuel Newton,	*Fond du Lac.*
Houlehan, Edward Shea, Jr.,	*Tomahawk.*
House, Edwin Charles,	*Elkhorn.*
Houston, Gray Jones,	*San Antonio, Tex.*
Howard, John Gardner,	*St. Charles, Ill.*
Hunt, Fred Emmet,	*Antigo.*
Jaekal, Elmer Carl,	*Marinette.*
Jelinck, Bohumil Joseph,	*Milwaukee.*
Johns, William John Burdett,	*Dodgeville.*
Johnson, Clarence Nathan,	*Trempeleau.*
Johnson, Glen Le Roy,	*Rockford, Ill.*
Johnson, Harold Holcomb,	*Belvidere, Ill.*
Jones, Charles Alvin,	*Burlington.*
Kartak, Franz August,	*Oconomowoc.*
Kauffman, Jesse,	*Hillsboro.*
Kerr, Henry Halleck,	*Eau Claire.*
Kessenich, Harry Emil,	*Madison.*
Kieckhefer, Alfred John,	*Milwaukee.*

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Kimball, Chester Albert,	*Briggsville.*
Klumb, Fred William,	*South Kaukauna.*
Knapp, Roy Roland,	*Milwaukee.*
Koch, Fred Herbert,	*Milwaukee.*
Krahn, William Otto Herman,	*Milwaukee.*
Kringel, August Emil,	*Wauwatosa.*
Kruell, George John,	*Milwaukee.*
Kypke, Clark Henry,	*Lake Mills.*
Ladd, Lester Lyle, Jr.,	*Madison.*
Lamb, Stephen Weber,	*Waukesha.*
Larson, Alfred Victor,	*River Falls.*
Larson, Lawrence Carroll,	*Tomah.*
Larson, Louis Martinus,	*Edgerton.*
Lewis, Robert Dudley,	*St. Paul, Minn.*
Liese, Fred Richard,	*Berlin.*
Loomer, Clayton Joseph,	*Whitewater.*
Lowe, Charles Wesley,	*Petersburg.*
Luce, Rey Vincent,	*Chilton.*
Luedke, Arthur Louis,	*Milwaukee.*
Lyman, Francis Josiah,	*Kenosha.*
Malone, Edward Samuel,	*Rhinelander.*
Mann, Charles,	*Milwaukee.*
Manor, Ross Eli,	*Genoa Junction.*
Martin, Roy,	*Darlington.*
McGinty, Michael James,	*Elroy.*
McMillian, William Archibald,	*Milwaukee.*
McNaughton, George Cameron,	*Wausau.*
McNown, Mark Freeman,	*Mauston.*
McWethy, Harold Elbert,	*Bloomer.*
Melin, Oscar William,	*Moline, Ill.*
Menzies, David Archibald,	*Janesville.*
Merrill, Pomeroy Cooper,	*Chicago, Ill.*
Messmer, John,	*Milwaukee.*
Miller, Charles John,	*La Crosse.*
Mills, Spafford John,	*Superior.*
Milstein, William Charles,	*Grand Rapids.*
Minich, Walter George,	*De Pere.*
Moeller, Roland,	*Milwaukee.*
Moss, Lester Maxwell,	*Sparta.*
Muckelston, Ralph Waldo,	*Waukesha.*
Muehl, Will Rex,	*Appleton.*

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Murat, Walter Bernard,	*Stevens Point.*
Murray, Francis Joseph,	*New Richmond.*
Murray, Hugh Earl,	*Superior.*
Natwick, Franklin James,	*Grand Rapids.*
Nelson, Helmer Clarence,	*Madison.*
Oakey, Samuel Frederick,	*Osceola.*
Olds, Albert Roy,	*Milwaukee.*
Olin, Nils Anshelm,	*River Falls.*
Olson, Carl,	*Rhinelander.*
Ordway, Alonzo Benton,	*Marshalltown, Ia.,*
Orr, Lester Benson,	*Mount Hope.*
Ovitt, Arthur Wilkie,	*Waukesha.*
Palfrey, John Robert,	*Omro.*
Parsons, Charles Le Roy,	*Los Angeles, Cal.*
Partlow, Kenneth Lawrence,	*Shawano.*
Pawling, Robert Alonzo,	*Milwaukee.*
Pengelley, Roy Leo,	*Madison.*
Pierce, Alfred Thompson,	*Madison.*
Pokrandt, Walter Gustaf,	*Waukesha.*
Porter, Joseph Kinnicuth Potter,	*Evansville.*
Price, Claude Faulders,	*Dixon, Ill.*
Purdy, Donald Fargher,	*Michigan City, Ind.*
Ramos, Juan Manuel,	*Camaguey, Cuba.*
Rankin, Hiram Smith,	*Milwaukee.*
Reynolds, Benjamin Smith,	*Milwaukee.*
Richardson, Hubert Hall,	*Milwaukee.*
Richart, Louis Phillip,	*Eagle.*
Riemschneider, Albert,	*Milwaukee.*
Riley, William Henry,	*Altoona.*
Ripley, Fred Hubert,	*Oakfield.*
Roherty, John Neal,	*Janesville.*
Rustone, Berlin Alwood Theodore,	*Deerfield.*
Saubert, Walter,	*South Kaukauna.*
Saxton, Ren George,	*Berlin.*
Scherer, Andrew Charles,	*Chicago, Ill.*
Scheunemann, Otto,	*Turtle Lake.*
Schmidt, Alfred Charles,	*Milwaukee.*
Schoephoester, George Washington,	*Reedsburg.*
Schroeder, Edward Harman,	*Chippewa Falls.*
Schuetz, Albert August,	*Milwaukee.*
Schwalbe, William Louis,	*Milwaukee.*

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Schwarting, Weber Herbert,	*Milwaukee.*
Searles, Charles Leo,	*Brodhead.*
Sellers, Stansmore Donald,	*Dodgeville.*
Seymour, Frederick Warner,	*Manistee, Mich.*
Shea, John Richard,	*Oshkosh.*
Sherburne, Frank Valentine,	*Fremont.*
Sherman, Myron Wood,	*Richland Center.*
Shipek, Adolph,	*Antigo.*
Shove, Byron Douglas,	*Ironwood, Mich.*
Slead, Darleigh Hiram,	*Evanston, Ill.*
Smith, Glen,	*Madison.*
Smith, Leathem Daley,	*Sturgeon Bay.*
Snyder, Carl Jaudon,	*Dubuque, Ia.*
Springer, Ernie John,	*Milwaukee.*
Staber, Ernest Henry,	*Mineral Point.*
Stecker, Hubert Albert,	*Madison.*
Steinberg, Ernest Joseph,	*North Freedom.*
Stevens, Clark Jay,	*Jefferson.*
Stevens, Leonard Jackson,	*Tomah.*
Stocker, Edward Charles,	*Platteville.*
Stocker, George Patrick,	*Platteville.*
Stoops, Charles Warren,	*Richland Center.*
Storer, Raymond Frederick,	*Des Moines, Ia.*
Storr, Frederick Montgomery,	*Malden, Mass.*
Swenholt, Helmer,	*Shawano.*
Tarnutzer, Lloyd,	*Prairie du Sac.*
Taylor, Joseph George,	*Madison.*
Teall, Thomas Tyler,	*Sparta.*
Terry, Edward F., Jr.,	*O'Kee.*
Thiele, Otto Victor,	*Milwaukee.*
Thomas, John Dobson,	*Chicago, Ill.*
Thompson, William Leonard,	*Washington, D. C.*
Torkelson, Francis Arthur,	*Black River Falls.*
Trilling, William George,	*Menasha.*
Van Auken, Claude Linn,	*Hazel Green.*
Van Auken, Kenneth,	*Hazel Green.*
Van Loon, William Owen,	*Midway.*
Vater, Frederick,	*Madison.*
Vosburgh, Frank Jones,	*Oak Park, Ill.*
Walker, Edward Smith,	*Hinsdale, Ill.*
Walker, Robert Yule,	*Madison.*

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Walmsley, Stephen Marston,	*Eau Claire.*
Walter, Charles William,	*Appleton.*
Wheeler, George Wilford,	*Plymouth.*
Wickstrom, Gustaf Adolf,	*Superior.*
Wieboldt, Raymond Carl,	*Chicago, Ill.*
Willard, Adrian Anson,	*Marshalltown, Ia.*
Wille, Louis William,	*Milwaukee.*
Wilson, Howard Anthony,	*Sioux City, Ia.*
Wilson, Sylvester Francis,	*Northport.*
Wohlrab, Aloyz Hugo,	*Milwaukee.*
Wohlrab, Sylvan William,	*Milwaukee.*
Wolf, Albert Matthias,	*Waukesha.*
Woods, Charles Reynolds,	*Fond du Lac.*
Workman, Dean Miller,	*West De Pere.*
Worthington, La Grange,	*Oak Park, Ill.*
Wright, John David,	*Baraboo.*
Wright, Lester James,	*Waukesha.*
Wuerth, Hubert,	*Sauk City.*
Yager, Ralph Mark,	*Aurora, Ill.*
Yandre, Edward William,	*Milford.*
Younggren, Russie Cornelius,	*River Falls.*
Zabel, William Paul,	*Sharon.*
Zehren, John Jake,	*Algoma.*
Ziegans, Irvin Warren,	*Sharon.*

—244

SPECIAL STUDENTS

Blankenhorn, George Stevens,	*Milwaukee,*	M. E.
Bosshard, John,	*La Crosse,*	C. E.
Foss, Glenn Arthur,	*Tomahawk,*	E. E.
Fragante, Vicente,	*Vigan, Ilocos Sur, P. I.,*	——
Goddard, George Theron,	*Waupun,*	E. E.
Gomez, Pastor,	*Calumpit, Bulacan, P. I.,*	——
Gruenehagen, Richard Elmer,	*Oshkosh,*	M. E.
Kirtley, Luther Lycurgus,	*Kansas City, Mo.,*	C. E.
Schellenger, Guy,	*Madison,*	E. E.
Shaffer, George Barnsback,	*Edwardsville, Ill.,*	——

—10

ADULT SPECIAL STUDENTS

Allen, Percy James,	*Madison,*	——
Austin, Eric Walton,	*Spanish Town, Jamaica,*	——
Beckwith, Arthur James,	*Milwaukee,*	C. E.

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Berssenbrugge, Bernard Joseph Benjamin,	*Milwaukee,*	——
Brennan, James Walter,	*Geneva, N. Y.,*	——
Brownlee, Frank Richard,	*Milwaukee,*	M. E.
Bücher, Henry,	*Philadelphia, Penn.,*	——
Burgess, Louis Green,	*Chicago, Ill.,*	G. E.
Carey, Alfred Blake,	*Wild Rose,*	C. E.
Crocker, Arthur George,	*Patterson, N. J.,*	——
Decker, John Simon,	*Oregon,*	——
De Wolf, Clark Frisbie,	*Findlay, O.,*	——
Fitz, Earl Samuel,	*Hanover, Penn.,*	——
Froelich, Frank Richard,	*Glenbeulah,*	M. E.
Gallup, Rockwell Loring,	*Denver, Colo.,*	M. E.
Garcia, Alfredo G.,	*Gral Teran, Nuevo Leon,*	——
Greene, Arthur N.,	*Fremont, O.,*	——
Hanson, John Arthur,	*Milwaukee,*	——
Harley, William Sylvester,	*Milwaukee,*	M. E.
Henke, Fred Christian,	*Wautoma,*	——
Hughes, John Jeremiah,	*Neillsville,*	——
Johnson, Philip Hafford,	*Appleton.*	——
Jones, Charles Edward,	*Madison,*	——
Kutschera, William Jacob,	*Milwaukee,*	——
Manegold, Frank William John,	*Milwaukee,*	M. E.
Martin, Andrew Henry,	*Bloomer,*	——
Marshall, Alfred Henry,	*Chicago, Ill.,*	——
Mathews, Lee Grange,	*Brandon,*	——
Mendez, Lauro Lopez,	*Apam, Hidalgo, Mex.,*	M. E.
Metz, John Joseph,	*Milwaukee,*	M. E.
Meyer, Arnold Frank,	*Milwaukee,*	M. E.
Meyer, Odd,	*Chicago, Ill.,*	G. E.
Morton, James Duncan,	*Madison,*	E. E.
Nuti, Charles Bennett,	*Glen Haven,*	——
Porter, Harry Allen,	*Mukwonago,*	E. E.
Schleifer, August Charles,	*Cedarburg,*	E. E.
Schmidt, Ferdinand Carl,	*Madison,*	E. E.
Schnitzler, Theodore Ernest,	*Milwaukee,*	E. E.
Shoop, Roy Bassett,	*Madison,*	M. E.
Smith, Raymond De Witt,	*Tiffin, O.,*	——
Sundby, George Martin,	*Milwaukee,*	——
Thickens, John Herman,	*Appleton,*	G. E.
Thompson, Isaac Thorbus,	*Blair,*	M. E.

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Warren, Paul Gregg,	*Wauwatosa,*	——
Zantow, Henry Carl,	*Baraboo,*	——
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College of Law

SENIOR CLASS

Anderson, Albert,	*Madison.*
Bogue, Andrew Stevenson,	*Poynette.*
Briere, Charles Edward,	*Grand Rapids.*
Cowell, William Albert, A. B.,	*Kewanee.*
Donovan, Louis Patrick, Ph. B.,	*Eagle Grove, Iowa.*
Griggs, Victor Rockwell, A. B.,	*Kewanee, Ill.*
Haggerty, Ray Jeremiah,	*Madison.*
Hawley, Tomlison Kent, L. L. B.,	*Milwaukee.*
Hedding, Adelbert James,	*Port Washington.*
Hemingway, Charles Henry,	*Hanover.*
Hill, Knute,	*Creston, Ill.*
Hoffman, Albert John, A. B.,	*Brookfield.*
Howley, John Edward, A. B.,	*Madison.*
Huck, Vincent Henry,	*Fond du Lac.*
Jones, Gad,	*Wild Rose.*
Jones, T. Harvey,	*Dousman.*
Kelsey, William Thomas, A. B.,	*Baraboo.*
Kline, Mark Antony,	*Milwaukee.*
Lange, Charles Henry,	*Stevens Point.*
Larish, Frank Ainslie,	*Oshkosh.*
Lau, Arnold,	*Cedarburg.*
Law, David Sidney, A. B.,	*La Crosse.*
Ledvina, Lawrence Wencel,	*Kelnarsville.*
Lerum, Arne Christophers, A. B.,	*Madison.*
Locke, Morris West,	*Oshkosh.*
Ludlow, Leo DeRuche,	*Waukesha.*
McMahon, Stephen John, Ph. B.	*Manitowoc.*
Melzner, Arthur Burdell, Ph. B.	*Waterloo, Iowa.*
Minton, Robert Parcells,	*Los Angeles, Cal.*
Mullen, Leon Theron,	*Waupun.*
Page, Archy Nathan,	*Neilsville.*
Parks, Howell Abro-Gardiner, A. B.	*Madison.*
Randall, Clifford Ellsworth,	*East Troy.*
Reynolds, Benjamin William,	*Tomah.*
Rhodes, William Thomas,	*Waupun.*
Segnitz, Herbert,	*Milwaukee.*

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Snider, Glen Rust,	*Kilbourn.*
Stark, Henry Walter, A. B.,	*Milwaukee.*
St. Germaine, Thomas Leo.	*Lac Du Flambeau.*
Sullivan, Raymond Ambrose,	*Portland, Ore.*
Tarrell, Lucius Ambrose,	*Darlington.*
Taylor, Charles Arthur, A. B.,	*Barron.*
Wagener, William Emil,	*Sturgeon Bay.*
Wollaeger, John Gustave,	*Milwaukee.*
Wrabetz, Voyta, B. L.,	*Kewaunee.*
Zeidler, Herbert Louis,	*Lomira.*

—46

MIDDLE CLASS

Arnold, Willard Henry,	*Sharon.*
Bell, Harry Garfield,	*Toma.*
Bogue, David, A. B.	*Poynette.*
Boland, Lee,	*Decatur, Ill.*
Clark, John Bernard,	*Stoughton.*
DeCamp, Frederick Ezekial,	*Lansing, Mich.*
Dempsey, Edward Joseph,	*Nashota.*
Dougherty, James Francis,	*Lyndon.*
Doyle, William Thomas,	*Fennimore.*
Drury, Alfred Leslie,	*Union Grove.*
Evans, Newton William,	*Dousman.*
Fellenz, Louis John,	*Campbellsport.*
Fischer, Russel Price,	*Waukegan, Ill.*
Galloway, Alvin Wilson,	*Poynette.*
Geisse, Harold Llewellyn, A. B.	*Chilton.*
Genzmer, John Milton,	*Hartford.*
Glicksman, Harry, A. B.	*Milwaukee.*
Grogan, Francis Wilbrod,	*Madison.*
Hanson, Frank Harold,	*Mauston.*
Hirshberg, Henry Adler,	*Milwaukee.*
James, Albert Earl,	*Madison.*
Kading, August,	*Reeseville.*
Kelley, James Lewis,	*Fond du Lac.*
Liljeqvist, Lawrence Andrew, B. L.	*Wausau.*
Lorenz, Ira Sherburn,	*Milwaukee.*
Lueck, Arthur William,	*Juneau.*
MacGraw, William Don, A. B.	*Chippewa Falls.*
McGillivray, William J.,	*Black River Falls.*
Mahon, Thomas Joseph, A. B.	*Milwaukee.*

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Maine, George Edward,	*La Crosse.*
Miller, Edward William,	*Marinette.*
Mistele, Laurence John,	*Jefferson.*
Natwick, Oscar O.,	*Viroqua.*
Newcomb, Paul Revere,	*Pepin.*
Pallansch, Arthur John,	*Madison.*
Pfund, Carl Frederick, A. B.	*Madison.*
Pomainville, Edward Nelson,	*Grand Rapids.*
Raymond, Elam Jewett, Jr.,	*Chippewa Falls.*
Richardson, Clarence Lemuel,	*Chippewa Falls.*
Sanderson, Thomas Alexander,	*Sturgeon Bay.*
Sapiro, Jacob Harry,	*Milwaukee.*
Schmidt, Richard August, A. B.	*West De Pere.*
Schram, Peter Henry,	*Madison.*
Seelman, Ernest,	*Milwaukee.*
Smith, Lynn Henry,	*Jefferson.*
Smongeski, Antone Lawrence,	*Two Rivers.*
Snider, John Ray,	*Kilbourn.*
Sullivan, Daniel, B. S.	*Menasha.*
Taylor, George William,	*Kenosha.*
Timlin, William Henry,	*Milwaukee.*
Vanderboom, Edward John,	*Marinette.*
Wallace, Edward Dorsey,	*Oak Park, Ill.*
Welton, Chauncey Rex, A. B.	*Madison.*
Wolters, Oscar Lambertus,	*Sheboygan.*

—54

JUNIOR CLASS

Baker, John Franklin, A. B.	*Alma Center.*
Bennett, William James,	*Virden, Can.*
Borden, James Benjamin,	*Madison.*
Brabant, Edmund Joseph,	*Madison.*
Bullock, William Loring, B. S.	*Madison.*
Bunsa, George Edward,	*Palmyra.*
Calkins, Frank Waldo,	*Stevens Point.*
Christofferson, Louis Christian,	*Pewaukee.*
Claridge, Samuel Joy,	*Thatcher, Ariz.*
Cole, Edgar George,	*Burnett Junction.*
Conlan, Lawrence Neil,	*Milwaukee.*
Copp, Ellen Adelaide,	*Madison.*
Cowles, Herbert Van, A. B.	*Madison.*
Crowe, George Daniel,	*Antigo.*

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Davidson, Gordon Scott,	*Pinos Altos, N. M.*
Fawcett, Frank Lester,	*Platteville.*
Ferry, Robert Phillips, A. B.	*Milwaukee.*
Foley, James Doyle, A. B.	*Milwaukee.*
French, Charles William,	*Lake Geneva.*
Friederich, Alexander Ernest,	*Madison.*
Gorman, Edward Patrick,	*Wausau.*
Hall, Charles Harold,	*Webster City, Ia.*
Howitt, Harvey Mathew,	*Pewaukee.*
Knoble, Fred Henry, B. S.	*West Butte, Mont.*
Lurvey, Edward Jackson,	*Oakfield.*
McDougal, Earl Loren,	*Milwaukee.*
McNally, Walter Harry,	*Madison.*
Mintner, Benjamin David,	*Fond du Lac.*
Morter, Robert John,	*Okee.*
Schoetz, Max Jr., A. B.	*Menasha.*
Stedman, Calvin Athol,	*Berlin.*
White, Charles Harold,	*Moline, Ill.*

—31

STUDENTS IN COLLEGE OF LETTERS AND SCIENCE ELECTING LAW STUDIES

Blanchard, George Washington,	*Colby.*
Breitenbach, Otto Henry,	*Milwaukee.*
Dunwiddie, Stanley Gray,	*Janesville.*
Hetzel, Ralph Dorn,	*Madison.*
Hopson, Howard Colwell,	*Madison.*
Hueffner, Martin Matthew,	*Racine.*
King, Clarence Baker,	*Madison.*
Krape, William Gorman,	*Freeport, Ill.*
Kuhlman, Charles Byron,	*Wausau.*
McConochie, George Stewart,	*Portage.*
Morgan, John Jeremiah,	*Cascade.*
Mulcahy, Max John,	*Madison.*
Risley, Guy Franklin,	*Baraboo.*
Schreiber, Cecil Everett, A. B.	*Madison.*
Stroud, Perry Curtiss,	*Portage.*
Thomas, Mary Ella,	*Berlin.*
Twesme, Albert Theodore,	*Blair.*
Whittier, Rowena Maud,	*Madison.*

—18

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SPECIAL STUDENTS

Collins, John,	*Hillsboro.*
Hannaford, Frank Howard,	*Kansasville.*
Kelm, William Otto,	*Portage.*
McDougal, Earl Loren,	*Milwaukee.*
Stolz, Henry Charles,	*Milwaukee.*

—5

College of Agriculture

LONG COURSE

Albrecht, William Jennings,	*Plymouth,*	Freshman.
Allen, Henry Coburn,	*Indianapolis, Ind.,*	Junior.
Amott, Albert Louis,	*Viroqua,*	Sophomore.
Bade, Elwood Julius,	*Plymouth,*	Freshman.
Barker, Earl Slayton,	*Chippewa Falls,*	Sophomore.
Barrett, Leonard George,	*Cudahy,*	Sophomore.
Batty, Arthur Benjamin,	*Madison,*	Freshman.
Bazan, Maximino Antonio,	*Cilecito, La Rioja, Argentine Republic,*	Freshman.
Benkendorf, Gustav Henry,	*Madison,*	Ad. Special 2.
Bewick, William Medhurst,	*Madison,*	Junior.
Black, William Maxwell,	*Angelica,*	Freshman.
Borja, Victoriano,	*Santa Cruz, Laguma, P. I.,*	Freshman.
Brindley, Thaddeus Hayward,	*La Crosse,*	Senior.
Bryant, Raymond Ryall,	*Augusta,*	Sophomore.
Burch, Dallas Stockwell,	*Milwaukee,*	Sophomore.
Candee, Benjamin Steele,	*Hinsdale, Ill.,*	Sophomore.
Gardenas, Federico Felipe,	*Sattillo, Coah, Mex.,*	Sophomore.
Carpenter, Nathaniel Elliott,	*Evanston, Ill.,*	Sophomore.
Carroll, William Peter,	*Wales,*	Senior.
Castro, José Maria,	*Concepecion, Chili,*	Special 2.
Charles, William Mortimer,	*Madison,*	Junior.
Cheney, John Raymond,	*Milwaukee,*	Junior.
Cleverdon, Joseph Rollo,	*Chicago, Ill.,*	Sophomore.
Cook, Allen Bruce,	*Madison,*	Ad. Special 1.
Cook, Robert William,	*Green Bay,*	Freshman.
Cooper, Walter Henry,	*Whitewater,*	Sophomore.
Cottingham, Erwin Yandell,	*Evansville, Ind.,*	Sophomore.
Courter, James Carlton,	*Hinsdale, Ill.,*	Ad. Special 2
Crane, Mary Josephine,	*Chicago, Ill.,*	Ad. Special 1.

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Curtis, Joseph,	*New Lisbon,*	Freshman.
Dalton, Thomas James,	*Madison,*	Freshman.
Davis, John Archibald,	*Racine,*	Senior.
Dean, Charles Edward,	*Madison,*	Freshman.
De Haven, Lloyd Omer,	*Monroe,*	Junior.
Delwiche, Edmond Joseph,	*Madison.*	Senior
Detjen, Louis Reinhold,	*Algoma,*	Freshman.
Dorwin, Fred John,	*Durand,*	Freshman.
Dwight, Alfred Richard,	*Chicago, Ill.,*	Ad. Special 1.
Elleau, Augustine Louise,	*Newark, N. J.,*	Special 2.
Farris, John,	*Fennimore,*	Sophomore.
Gangstad, Julius Liverine,	*Deerfield,*	Ad. Special 2.
Gapen, Charles Earl,	*Monroe,*	Freshman.
Germann, Henry Louis,	*Brackett,*	Junior.
Gomez, José,	*Jaro, Ilo-ilo, P. I.,*	Freshman.
Griffith, Leon Osee,	*Monroe,*	Junior.
Hammer, Bernard Wermick,	*Hillsboro,*	Sophomore.
Hartung, William John,	*Milwaukee,*	Sophomore.
Hatch, Kirk Lester,	*Waterloo,*	Special 2.
Haugan, John Richard,	*Chicago, Ill.,*	Ad. Special 1.
Hill, George Bradbury,	*Milwaukee.*	Sophomore.
Hine, George Sherwood	*Fairchild,*	Junior.
Hoffmann, Conrad,	*Phillips,*	Senior.
Jalandoni, José Havan,	*Jaro Hoilo, P. I.,*	Sophomore.
Johnson, Albert Aaron ,	*McFarland,*	Junior.
Johnson, James,	*Deerfield,*	Sophomore.
Johnson, Olaf Benjamin,	*Chicago, Ill.,*	Junior.
Kadonsky, Joseph Frank,	*Dorchester,*	Junior.
Knight, Charles,	*Mineral Point,*	Junior.
Kolb, Roland August,	*Cleveland,*	Freshman.
Larsen, Louis Theodore,	*Chicago, Ill.,*	Freshman.
Lassetter, William Casper,	*Villa Rica, Ga.,*	Freshman.
Lathrop, Alfred Tennyson,	*Madison,*	Freshman.
Leith, Thomas Setter,	*Appleton,*	Freshman.
Leverich, Edward Starr,	*Sparta,*	Freshman.
Lewis, Marshall,	*Milwaukee,*	Freshman.
Linde, Charles Albert,	*Chicago, Ill.,*	Ad. Special 2.
Lloyd-Jones, Orren,	*Hillside,*	Sophomore.
Lothe, Herbert,	*Stoughton,*	Sophomore.
Marken, Richard Louis,	*Valders,*	Freshman.
Marshall, Roy R.,	*East Troy,*	Junior.

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Matheson, Kenneth Jessie,	*Elkhorn,*	Freshman.
McFetridge, William Lauren,	*Oshkosh,*	Freshman.
McKarrow, William,	*Pewaukee,*	Freshman.
Mendez, Arnulfo Epitacio,	*Apam, Hid., Mex.,*	Ad. Spec. 1.
Meyer, Arthur John,	*Oakwood,*	Sophomore.
Mihills, Donald Ross,	*Fond du Lac,*	Freshman.
Miller, Walter Charles,	*Manawa,*	Freshman.
Milward, James Garfield,	*Madison,*	Junior.
Morris, William Earl,	*Ridgeway,*	Freshman.
Moseley, Raymond Winthrop,	*Madison,*	Sophomore.
Murdock, Clayton Ross,	*Brodhead,*	Junior.
Murphy, James Oliver,	*Racine,*	Sophomore.
Nelson, Louis,	*Eau Claire,*	Freshman.
Norgord, Christian Percival,	*Bangor,*	Senior.
Norris, Arthur John,	*Milwaukee,*	Junior.
Oosterhuis, Alvin Cecil,	*Sheboygan Falls,*	Freshman.
Orton, Frank S.,	*Lancaster,*	Junior.
Page, Guy Fred,	*Berlin,*	Junior.
Parsons, William Amos,	*Ft. Atkinson,*	Senior.
Post, Allyn Eddy,	*Madison,*	Freshman.
Reif, Walter John,	*Madison,*	Sophomore.
Richards, Morris Wilford,	*Madison,*	Freshman.
Ringland, Josiah Allan,	*Boone, Ia.,*	Senior.
Robertson, James Brownlee,	*Milwaukee,*	Sophomore.
Rodringuez, Aristides Antonio,	*Parana, Argentine Republic,*	Freshman.
Rogers, Augustus James, Jr.,	*Milwaukee,*	Junior.
Rosenthal, Ernst,	*Oshkosh,*	Junior.
Roy, Robert McGregor,	*Milwaukee,*	Freshman.
Ruzek, Charles Vladis,	*Chicago, Ill.,*	Freshman.
Ryall, Bryant Raymond,	*Augusta,*	Sophomore.
Sanborn, Eugene Hiram,	*Madison,*	Special 2.
Schroeder, Christ,	*Kewaunee,*	Senior.
Schroeder, Walter Carl,	*West Bend,*	Sophomore.
Schwenker, Philip Frederick,	*La Crosse,*	Sophomore.
Scoville, Frederick Charles,	*Racine,*	Freshman.
Selke, George Henry,	*Milwaukee,*	Freshman.
Showalter, Ray Peter,	*Madison,*	Sophomore.
Smith, Arthur George,	*Mt. Horeb,*	Sophomore.
Steenbock, Harry,	*Madison,*	Sophomore.
Steendahl, Samuel French,	*Menomonie,*	Ad. Special 1.

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Steinhaus, Walter Ernest,	*Sheboygan,*	Sophomore.
Stocker, Albert,	*Sauk City,*	Freshman.
Strothmann, Sylvester William,	*Milwaukee,*	Freshman.
Swan, Laurel William,	*Mukwonago,*	Ad. Special 1.
Sylvester, Walter William,	*Seymour,*	Sophomore.
Tallmadge, George Adams,	*Milwaukee,*	Freshman.
Tarrell, Richard Henry,	*Darlington,*	Freshman.
Theige, Karl Johannes,	*Viroqua,*	Sophomore.
Thompson, Robert Kirk,	*Milwaukee,*	Senior.
Thompson, William Eugene,	*Somers,*	Freshman.
Thorkelson, Carl Edward,	*Racine Junction,*	Senior.
Tormey, John Lawless,	*Fennimore,*	Junior.
Trowbridge, Edwin,	*Mondovi,*	Senior.
Truog, Emil,	*Independence,*	Freshman.
Walker, William Bohler,	*Madison,*	Junior.
Walline, Austin,	*Upland,*	Junior.
Walsh, Arthur Edmund,	*Racine,*	Freshman.
Walster, Harlow Leslie,	*Spring Green,*	Sophomore.
Washburn, Edgar Bassett,	*Hinsdale, Ill.,*	Freshman.
Weir, Wilbert Walter,	*Mukwonago,*	Sophomore.
Wendt, George Frederic,	*Clyman,*	Ad. Special 1.
Wilber, Charles McCollum,	*Madison,*	Freshman.
Wood, Robert Arthur,	*Chicago, Ill.,*	Sophomore.
Young, Rosco Byron,	*Wausau,*	Junior.
Yumul, Victoriano,	*Apalit, Pampanga, P. I.,*	Sp. 1.
Zentner, Francis Henry,	*Point Bluff,*	Freshman.

—136

SHORT COURSE STUDENTS—SECOND YEAR

Aavang, Henry Oscar,	*Barneveld.*
Accola, John H.,	*Prairie du Sac.*
Accola, Lawrence,	*Prairie du Sac.*
Amdall, George Martin,	*Dallas.*
Anderson, Adolph W.,	*Portage.*
Anderson, Alvin M.,	*Whitewater.*
Anderson, Martin,	*Morrisonville.*
Anderson, William Henry,	*Elroy.*
Ashton, Arthur Blaine,	*Belmont.*
Ashton, Charles Henry,	*Belmont.*
Ashton, William L.,	*Belmont.*
Barmore, Trevor Jay,	*Monroe.*
Bell, Legrand Logan,	*Brooklyn.*

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Bennett, Philip Thayer,	*Lake Beulah.*
Best, Frank Everett,	*Brooklyn.*
Bjerrum, Martin Peter,	*Racine.*
Boggess, Charles Perry,	*Catlin, Ill.*
Boucsein, Gust,	*Detroit Harbor.*
Brager, Henry A.,	*Mt. Horeb.*
Brook, James Walter,	*Salem.*
Brown, Edward Dudley,	*West Salem.*
Brown, Stanley Livingston,	*Postville, N. Y.*
Burr, Harvey Ray,	*Waterloo.*
Calhoun, Reid Emerson,	*Aledo, Ill.*
Campbell, George Philip,	*Augusta.*
Chatterton, Ray Webb,	*Basco.*
Chloupek, Victor A.,	*Mishicott.*
Chrisler, Harley Eldred,	*Lodi.*
Christiansen, William Ole,	*Chippewa Falls.*
Chrysler, Harvey,	*Osseo.*
Clack, John H.,	*Appleton.*
Conger, Theo. H., Jr. ,	*Madison.*
Dahlen, Melvin Theo.,	*Westby.*
Deleglise, Leo. L.,	*Antigo.*
Delsman, Theo.,	*Manitowoc.*
Ebert, Edmund D.,	*Tomah.*
Ellis, Vernie G.,	*Evansville.*
Ely, Scott Ely Dixon,	*Strongs Prairie.*
Erickson, Erick,	*Soldiers Grove.*
Finsnes, Andrew,	*Stoughton.*
Fischer, Louis H.,	*Haven.*
Ford, Thos. R.,	*Milwaukee.*
Fox, Edgar Wilson,	*Reedsville.*
Freeman, Roy F.,	*Racine.*
George, Sam A.,	*Madison.*
Gibbard, Peter James,	*Ripon.*
Gimre, Carl Henry,	*Madison.*
Goddard, Mark Charles,	*Ft. Atkinson.*
Goldsmith, Richard Bloug,	*Weyauwega.*
Grimstad, Alvin Canute,	*Barneveld.*
Grimwood, Ivan J.,	*Bristol.*
Griswold, Harry Wilbur,	*West Salem.*
Halvorsen, Theo.,	*Whitewater.*
Harriman, Fred E., Jr.,	*Shawano.*

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Hansen, Harry Hubert,	*Fontenoy.*
Hanson, Nels P.,	*Amherst Junction.*
Hargrave, Robert Oliver,	*Ripon.*
Harris, Ruthven Elmer,	*Warrens.*
Harrison, George,	*Wilton.*
Heldstab, Christ Otto,	*Rice Lake.*
Herdrick, Sam Fred,	*Adell.*
Hetts, C. Eugene,	*Ft. Atkinson.*
Hill, Otto C.,	*Mt. Horeb.*
Hinz, Arthur Frederick	*Ripon.*
Hoefner, Fred Carl,	*Manitowoc.*
Huebsch, Lewis Andrew,	*Galena, Ill.*
Imig, Arthur Harold,	*Neillsville.*
Jensen, Rasmus,	*Genoa Junction.*
Johnson, Alden Oscar,	*Weyauwega.*
Johnson, Charles Garfield,	*Clintonville.*
Kaiser, Edward Casper,	*Garnavillo, Ia.*
Kimble, Newcomb,	*Milton Junction.*
Kindschi, Lyman Oren,	*Prairie du Sac.*
Kinney, Robert Olin,	*Lancaster.*
Kinney, Rolla Ernest,	*Potosi.*
Klussendorf, Fred Edward,	*Milwaukee.*
Lachmund, Robert,	*Sauk City.*
Lanpheer, Harry,	*Glenbeulah.*
Larsen, Charles Louis,	*Sparta.*
Lee, Ernest Wright,	*Granton.*
Longley, Harvey Newman,	*Dousman.*
Lyon, Wilson Brown,	*Merrillan.*
Matheson, Martin,	*Sawyer.*
McKichan, Floyd Emil,	*Patch Grove.*
Meekin, Hamilton Wright,	*Fond du Lac.*
Mehnert, Jesse G.,	*Milwaukee.*
Meyer, Louis Jacob,	*Mishicott.*
Millar, William, Jr.,	*Menomonie.*
Mohr, Oswald William,	*Milwaukee.*
Mueller, August W.,	*Manitowoc.*
Murphy, Robert Gamble,	*Westtown, Pa.*
Nelson, Elmer Brian,	*Osceola.*
Nies, Peter J.,	*Greenleaf.*
Ochsner, Arthur C.,	*Plain.*
Orr, Willard David,	*Madison.*

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Palmer, Howard,	*Baraboo.*
Pearson, Bert,	*Lake Geneva.*
Peck, Henry Milton,	*Marshall.*
Peters, Ezra,	*Sharon.*
Peterson, Theo. Alven,	*Postville.*
Pfeiffer, Walter Alfred,	*West Bend.*
Pope, Leon Thos.,	*Sun Prairie.*
Premo, Kenneth, L.,	*Prairie du Sac.*
Reese, James Leroy,	*Mineral Point.*
Sampson, Philip Allen,	*Audubon, Ia.*
Sanborn, Eugene Hiram ,	*Madison.*
Scholtz, Charles W.,	*Pewaukee.*
Schrickel, Edward A.,	*Green Bay.*
Schwartz, Walter W.,	*Troy Center.*
Scott, Gerhard George,	*Madison.*
Sharpee, Carl,	*Rio.*
Sharpee, Endre A.,	*Rio.*
Skenandore, Edward Edgar,	*Oneida.*
Smille, Raymond Keith,	*Madison.*
Smith, Henry Burns,	*Brooklyn.*
Snyder, Wesley Velorous,	*Lancaster.*
Sorenson, Hilbert,	*Franksville.*
Speerschneider, Fred August,	*New Franken.*
Spink, Harold LeRoy,	*Platteville.*
Steele, Samuel H.,	*Lodi.*
Steiner, George,	*Lomira.*
Straka, Edward,	*Kellnersville.*
Thorstad, Nels H.,	*Deerfield.*
Tomkins, Orville Scott,	*Ashland.*
Tretsven, John Oscar,	*Milltown.*
Tully, Andrew,	*Delavan.*
Vinger, George,	*Argyle.*
Von Lanyi, Oscar,	*Woodman.*
Wall, William,	*Weyauwega.*
West, Ray Nelson,	*Ripon.*
Weston, Albert William,	*Audubon, Ia.*
Whittaker, Horace,	*Fond du Lac.*
Wied, Edward,	*Waupaca.*
Winter, Loyd Henry,	*Eau Claire.*
Woodard, Frederick B.,	*Bloomer.*

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Wright, Wray C.,	*Eau Claire.*
Zerbel, Lewis Richard,	*Humbird.*

—137

SHORT COURSE STUDENTS—FIRST YEAR CLASS

Akins, Clyde Ernest,	*Warren, Ill.*
Alcalay, Sam Jonas,	*Milan, Ill.*
Althouse, William Clifford,	*Reading, Pa.*
Annear, Earl Samuel,	*Boaz.*
Anderson, Henry,	*Mt. Horeb.*
Anderson, Peter,	*Milwaukee.*
Anderson, Thomas Elert,	*Wild Rose.*
Andrus, Thomas,	*Humbird.*
Arp, Gustav Adolph,	*Madison.*
Austin, Wilbur Daniel,	*Janesville.*
Barnes, William Henry,	*New Lisbon.*
Bast, Paul Jacob,	*Rockfield.*
Bauffleur, Philip Theo.,	*Viroqua.*
Bechtolt, James Daniel,	*Monroe.*
Bennett, Philo,	*Rubicon.*
Bennett, Ora,	*Glen Haven.*
Bennett, William L.,	*New Richmond.*
Birrenkott, Michael J.,	*Klevenville.*
Blood, Ike,	*Mukwonago.*
Borden, Herbert Thos.,	*Swedesboro, N. J.*
Boyle, Frank Edward,	*Milwaukee.*
Brandt, Louis H.,	*Garnavillo, Ia.*
Bryson, Donald LeRoy,	*Elizabeth, Ill.*
Byerly, Edmund,	*Antigo.*
Cameron, Duncan Argus,	*La Crosse.*
Carmichael, Allen,	*Waukesha.*
Cass, Leonard Ernest,	*Viroqua.*
Christensen, Herman,	*Milltown.*
Christoph, Theo. Frank,	*Chilton.*
Chynoweth, Herbert Edgar,	*Madison.*
Clark, Clarence G.,	*Markesan.*
Clavadatscher, Tobias,	*Sauk City.*
Clemit, Adolph,	*Cambridge.*
Cooney, Martin Edward,	*Corliss.*
Crane, Valentine Rockwell,	*St. Charles, Ill.*
Crosse, Theo. G.,	*Sun Prairie.*
Dean, Earl,	*Madison.*

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Delwiche, Octave J.,	*Green Bay.*
Deneen, Michael,	*Blue Mounds.*
Dittman, William Albert,	*Elizabeth, Ill.*
Douney, Urso,	*Whitewater.*
Drolshagen, Anthony Francis,	*Milwaukee.*
De La Guardia, Herman,	*San Jose, Coste Rica, C. A.*
Einfeldt, Albert,	*Greenwood.*
Eiring, Erwin,	*Milwaukee.*
Elleau, Augustine,	*Newark, N. J.*
Ellison, Charles John,	*Rubicon.*
Engleman, John,	*Galesville.*
Erickson, Ole Christen,	*Detroit Harbor.*
Fenster, Alvy,	*Middleton.*
Fischer, Clayton Eugene,	*Evansville.*
Fischer, Joseph,	*Janesville.*
Foster, Carl Cleveland,	*Fall River.*
Fromm, Walter John,	*Cedarburg.*
Fuller, Sidney Louis,	*Milwaukee.*
Ganstad, John Otis,	*Deerfield.*
Gardner, Willis Henry,	*Solon Mills, Ill.*
Garey, Alva Edward,	*Edgerton.*
Garside, Harry Rhodes,	*Cedar Grove.*
Gassen, Louis,	*Glen Haven.*
Gross, Waldo Edward,	*Merrimac.*
Gueldner, William,	*Mondovi.*
Haave, Isaac P.,	*Bonduel.*
Hansen, George Maurice,	*Fontenoy.*
Hanzlik, David E.,	*Wonewoc.*
Harris, Jesse Seward,	*Delavan.*
Hasselkus, Erwin Hugo,	*Milwaukee.*
Hasselquist, William,	*Wild Rose.*
Haus, Enoch,	*Rice Lake.*
Hay, David Gordon,	*Milwaukee.*
Heidman, Albert Charles,	*Stangelville.*
Heinke, Alvin,	*New London.*
Heyroth, Louis Henry,	*Mishicott.*
Hicks, Earl Leroy,	*Pepin.*
Hoague, Charles Clinton,	*Janesville.*
Hoefner, Alfred Fred,	*Manitowoc.*
Holman, Lee Allen,	*Waupaca.*
Holman, Ray Manley,	*Waupaca.*

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Houselet, Corneilous Eli,	*Packwaukee.*
Howell, Horace Palmer,	*Sparta.*
Jacky, Harvey Louis,	*Malone.*
Jacobs, Adam John,	*Coloma Station.*
Jacobs, Albert Franklin,	*Coloma Station.*
James, Levi Perry,	*Delavan.*
Jamison, Robert,	*Appleton.*
Jirtle, George B.,	*Algoma.*
Jewett, Leonard Chester,	*Marshall.*
Johnson, Albert Idul,	*Bloomer.*
Johnson, Elmer,	*Williams Bay.*
Johnson, Lawrence Graham,	*Whitewater.*
Jones, Augustus,	*Sparta.*
Kaltenberg, Anton,	*Waunakee.*
Keogh, Harry Patrick,	*Forestville.*
Kneip, William,	*Weyauwega.*
Knight, Edward Leslie,	*River Falls.*
Knudsen, Harold Martin,	*Merrill.*
Krase, Henry Charles,	*Two Rivers.*
Krogstad, Oscar Julius,	*Eau Claire.*
Krostue, Julius,	*Sheridan.*
Krueger, Henry Edward,	*Beaver Dam.*
Larson, Elmer Joshua,	*Waupaca.*
Larson, LeRoy J.,	*Iola.*
Lean, Floyd Hodon,	*Elkhorn.*
Lebeis, Frank Joseph,	*Bloomer.*
Leete, Carroll,	*West Salem.*
Lewis, George Carlisle,	*Charlotte, Vt.*
Liebzeit, Albert,	*Sheboygan Falls.*
Lindberg, Emil John,	*Itasca Station.*
Lloyd-Jones, Scott,	*Hillside.*
Loomis, George E.,	*Mondovi.*
Lowry, Harry Wilson,	*Waukesha.*
Lyons, Joseph,	*Basco.*
Markey, Walter Harry,	*Sullivan.*
McIntyre, Ivan Myrton,	*Ft. Atkinson.*
Merkel, Henry,	*Appleton.*
Miller, Guy Edward,	*Markesan.*
Miller, Lewis A.,	*Sparta.*
Moergeli, Henry William,	*Washburn.*
Morse, Walter Anson,	*Camden, N. Y.*

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Murkley, Heber Dewey,	*Berlin.*
Nelson, Nels Herman,	*Madison.*
Nelson, Peter Christian,	*Milltown.*
Norsman, Jerome O.,	*Madison.*
North, George	*Madison.*
Oldenburg, Gustav Herman,	*Baileys Harbor.*
Orell, Leo,	*Algoma.*
Orth, Alfred Frances,	*Muscoda.*
Orvold, Jens,	*Ashland.*
Pabst, Fred,	*Milwaukee.*
Palm, Oscar Emil,	*Washburn.*
Patterson, Roger H.,	*Durand, Ill.*
Peterson, August,	*Amery.*
Peterson, Conrad T.,	*Grantsburg.*
Peterson, Perry Oliver,	*Amherst.*
Pfanku, Iven Gordon,	*Arena.*
Pritzl, Edward,	*Cato.*
Raether, Louis Jacob,	*Algoma.*
Raht, John Thos.,	*Waukesha.*
Rasmussen, Gordon Sorbye,	*Franksville.*
Ray, Robert Lewis, Jr.,	*Arena.*
Reinen, Carl Christian,	*Sun Prairie.*
Reik, Anthony,	*Spring Green.*
Roewert, Louis Frederick,	*Evansville.*
Roffers, John Hubert,	*Green Bay.*
Rorer, William A., Jr.,	*Washington, D. C.*
Ruggles, William Guy,	*Ridgeway.*
Rundell, Dale Evan,	*Livingston.*
Schiller, Claude Edwin,	*Beaver Dam.*
Scholtz, George Fred,	*Turtle Lake.*
Schoephorster, Henry,	*Prairie du Sac.*
Scholze, Theo. A.,	*Sparta.*
Schomberg, Henry William,	*Sheboygan Falls.*
Schroeder, Herbert F.,	*West Bend.*
Sharpe, Charles Edward,	*Waldo.*
Simon, Henry N.,	*Sawyer.*
Simonson, Arthur W.,	*Racine.*
Smith, Delbert Carl,	*Brooklyn.*
Smith, Emrie Black,	*Beaver.*
Sorenson, Albert E.,	*Osceola.*
Steward, Charles Amelius,	*Chicago, Ill.*

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Siemers, Edward Ferdinand,	*Cleveland.*
Stratton, Joel William,	*Waupaca.*
Sullivan, James Alex,	*Grimms.*
Sullivan, Jim Jerry,	*Forestville.*
Te Stroete, Jesse Anthony,	*Cedar Grove.*
Thackray, Joseph,	*Glen Beulah.*
Thompson, Lute Edward,	*Berlin.*
Thompson, Thore, Jr.,	*Wadena, Ia.*
Tjugum, Charles Edwin,	*Sun Prairie.*
Tressler, D. Ray,	*Edon, O.*
Trow, Edward James,	*Oregon.*
Turgasen, John H.,	*Richland Center.*
Turner, Charles Lee,	*Elkhorn.*
Van Blaricon, Edward,	*Spring Green.*
Vinger, Milo James,	*Argyle.*
Vollmer, John Adolph,	*Milwaukee.*
Vollmer, Theo. Fred,	*Milwaukee.*
Volz, Robert Ernest,	*Reedsburg.*
Voss, William Robert,	*Mazomanie.*
Ward, William Rodell,	*Ft. Atkinson.*
Whitby, Arthur Jacob,	*Chilton.*
Whitehead, Henry William,	*Leon.*
Wirkler, Alfred John,	*Carnavillo, Ia.*
Willoughby, Thos. Fletcher,	*Madison.*
Zwickey, John Delphus,	*Scandinavia.*

—185

DAIRY SCHOOL CLASS

Addler, Perry George,	*West Allis.*
Anderson, Andrew,	*Alma Center.*
Arendt, John.	*Cedar Grove.*
Barth, Rudolph,	*Madison.*
Beecroft, Thomas,	*Almena.*
Benishek, Frederick William,	*Kellnersville.*
Berry, Lemuel Sydney,	*Portage.*
Bires, William Henry,	*New Lisbon.*
Bjerking, Jens Larson,	*Beldonville.*
Boerschinger, Henry John,	*Green Bay.*
Boerschinger, John,	*Green Bay.*
Boldt, William Charles,	*Calhoun.*
Braman, George Westly,	*Neillsville.*

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Bruns, George Dedrick,	*Plymouth.*
Brux, William William,	*Appleton.*
Burmeister, Herman William,	*Rib Lake.*
Bushman, George Henry,	*Abbottsford.*
Carlin, John,	*Fall River.*
Ciha, Frank,	*Stangleville.*
Cunningham, Earl Thomas,	*Rockbridge.*
De Coster, James Thomas,	*Deronda.*
Devorak, Joseph Adolph,	*Kewaunee.*
Dohnal, Frank Wratislaw,	*Cato.*
Drage, Gustav Robert,	*Bonduel.*
Drought, William Henry,	*Watertown.*
Ducharme, Joseph Eugene,	*Mt. Ida.*
Ebbins, Frank William,	*Appleton.*
Edwards, William,	*Hayton.*
Elmer, Henry,	*Belleville.*
Fenn, Oscar August,	*Cleveland.*
Frank, William Joseph,	*Manitowoc.*
Gartmann, August,	*Edgar.*
Geimer, Leo Joseph,	*Mishicott.*
Geisler, William Frederick,	*Greenwood.*
Gierach, Otto Richard,	*Cedarburg.*
Glick, Miner Jacob,	*Sylvan.*
Godoy, Henry Victor,	*Buenos Ayres, Arg. Rep.*
Goodrich, Jonah Spaulding,	*Augusta.*
Gotter, Richard Fred,	*Granton.*
Graf, Fred Adolph,	*Butternut.*
Grant, Bennie Anton,	*Kewaunee.*
Green, Lester Hill,	*La Farge.*
Greunke, Otto Frank,	*Clintonville.*
Guse, Paul William,	*Neillsville.*
Haag, William,	*Garnet.*
Hackbarth, William Charles,	*Ft. Atkinson.*
Halpin, Thomas Charles,	*Cedarburg.*
Haskins, Harvey James,	*Horicon.*
Heller, Charles Frank,	*Grafton.*
Henthorn, Ernest Everett,	*Viola.*
Hermanson, Eric,	*Northland.*
Herreman, Ouzellus Francis,	*Pardeeville.*
Hilgers, Peter John,	*Waunakee.*
Hoelzer, Frederick Charles,	*Medford.*

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Hopp, Bernard Bernard,	*Sturgeon Bay.*
Horel, Harvey Earl,	*Augusta.*
Ibinger, Charles Leo,	*Millston.*
Johnson, Henry Oscar,	*Curtiss.*
Jones, Clinton Harry,	*Palmyra.*
Kalk, Herbert Adelbert,	*Sheboygan.*
Kallies, Herman August,	*Bonduel.*
Kidd, Paul Theron,	*Bloom City.*
Knappmiller, Theodore Frank,	*Kewaunee.*
Koenig, Otto,	*Cecil.*
Koenigs, Matthew,	*Malone.*
Kohel, Louis M.,	*Auburndale.*
Kohli, Alvis Christ,	*Mayville.*
Kohn, Michael,	*Kewaskum.*
Koller, Fred William,	*Alma.*
Kolpack, Albert Charles,	*Regina.*
Kopetsky, Winzel,	*Two Rivers.*
Kostner, George Frank,	*Arcadia.*
Kuhn, John James,	*Cleveland.*
Kraak, Chriss Adolph,	*Muscoda.*
Kriewaldt, Alexander,	*Embarrass.*
Kubs, John Joseph,	*Cato.*
Lange, August Farnent,	*Medford.*
Laumer, William Frederick,	*Rib Falls.*
Long, Edward E.,	*Bloom City.*
Lopez, Rodolfo Bibiano,	*Coranda, Sta Fe, A. R.*
Lovell, John Thomas,	*Oshkosh.*
Luhm, Charles Robert,	*Dakota.*
Lulloff, William August,	*Hilbert.*
Maechtle, Arthur George,	*Port Washington.*
Malczewski, Edward Henry,	*Laney.*
Mayer, Joseph Anthony,	*St. Martins.*
Mayerl, William George,	*Cato.*
McClanahan, John Robert,	*Manhattan, Ill.*
Melsby, James Orin,	*Spring Valley.*
Moord, Albin,	*Range.*
Meracle, Ralph,	*Dousman.*
Mielke, Charles William,	*Wittenberg.*
Moersch, Quirin,	*Peebles.*
Mortenson, John,	*Camp Douglas.*
Motzkus, Ewald Paul,	*Dundee.*

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Moyes, William Alvis,	*Cazenovia.*
Mrotek, Peter,	*Kewaunee.*
Mueller, Adolph A.,	*Germania.*
Mullen, Edward Joseph,	*Watertown.*
Olson, Otto,	*Chimney Rock.*
Pauly, Charles Leo,	*Port Washington.*
Peterson, Henry Oscar,	*Union Grove.*
Peterson, John Albert,	*Grantsburg.*
Peterson, Axel Haney,	*Mt. Morris.*
Phillips, John Lawrence,	*Park Falls.*
Picha, Wencle,	*Eastman.*
Pischke, Edward John,	*Ripon.*
Plett, Gustav William,	*Cream.*
Porter, Clyde Jewell,	*Berlin.*
Radtke, August Carl,	*Rib Lake.*
Rank, Louis,	*Manitowoc.*
Rappel, Marcus Joseph,	*Reedsville.*
Rasmussen, Leslie Levi,	*Blaine.*
Recob, Guy Clarence,	*Neptune.*
Redelings, Henry,	*Marinette.*
Reid, Ray Allen,	*Oxford.*
Reineck, Herman G.,	*Elkhart.*
Reinhard, Frank Lewis,	*Green Bay.*
Reinhardt, Frank Charles,	*Allenville.*
Reidel, Gerhard Charles,	*Potter.*
Rilling, Miles Joseph,	*Omro.*
Roffers, Jacob H.,	*Green Bay.*
Rosenburg, Edward Peter,	*Colfax.*
Schlenske, Joseph August,	*Eldorado.*
Schnebele, Edwin,	*Brodhead.*
Schmahl, Christian, Jr.,	*Elkhart.*
Schmitt, William Fred,	*Byrds Creek.*
Schwalenberg, Albert Herman,	*Potter.*
Seibert, Jacob Ambrose,	*Niellsville.*
Schwantes, Otto Rudolph,	*Manitowoc.*
Simmons, Miner Lee,	*Auburndale.*
Sorenson, Lawrence Thorwald,	*Haywards, Cal.*
*Speerchneider, John Henry,	*New Franken.*
Spreen, Otto,	*Medford.*
Stevens, Walter Isaac,	*Manawa.*

*Died November 9, 1905.

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Strouf, Frederick Benedict,	*Mishicot.*
Strube, Charles Ernest,	*Hales Corners.*
Stryker, Irvin Wendling,	*Lomira.*
Stucky, Earl John,	*Mentorville, Minn.*
Stucky, Louis E.,	*Pine Island, Minn.*
Svetnicka, Edward,	*Boscobel.*
Swanson, Arthur Claus,	*Grantsburg.*
Tess, William August,	*Tisch Mills.*
Thorp, Lawrence Gilbert,	*Blue River.*
Tinner, Adrian,	*Ridgeway.*
Troemner, Henry,	*Quincy.*
Tuttle, Merle Irving,	*Omro.*
Utgard, Peter C.,	*New Richmond.*
Van Burkom, John Frank,	*Appleton.*
Viste, Nick,	*Sawyer.*
Votz, Edward August,	*Manawa.*
Wallu, Carl Heinrich,	*Milwaukee.*
Warnkie, William Richard,	*Marquette.*
Werth, William Frederick,	*Lime Ridge.*
West, Fay Frederick,	*Lake Mills.*
Wierichs, Joseph Nichols,	*Casco.*
Winkler, Ernest E.,	*Hartford.*
Wohlwend, Minnie H.,	*Juda.*
Wold, Sverre,	*Westby.*
Yates, Rufus Alonzo,	*Packwaukee.*
Youra, Frank Joseph,	*Mishicot.*
Zank, Arthur Raymond,	*Augusta.*
Zimmerman, William,	*Elkhart.*

—163

SUMMER SESSION OF 1905

Graduates

Allen, Daisy May, Ph. B., University of Wisconsin,	*Allenville.* Greek, History, Home Economics, Psychology.
Anderson, William Ballantyne, M. S., University of Wisconsin,	*Madison.* Physics.
Aylsworth, Leon Emmons, B. A., University of Nebraska,	*Lincoln, Neb.* History, Political Science.
Barber, George Stanley, B. A., University of Wisconsin,	*Lawton, Okla.* Anatomy.
Barnett, Winifred, B. A., Emporia College,	*Emporia, Kan.* Latin.
Bassett, Herbert, B. S., University of Illinois,	*Wilmette, Ill.* Education.

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Berry, Thomas Richard, *Glendale, O.*
B. S., Wilmington College, History.
LL. B., Law School of Cincinnati.

Berto, Thomas J., *Amherst.*
B. A., University of Wisconsin, History, Political Science.

Billings, Frederick Horatio, *Baton Rouge, La.*
B. A., Leland Stanford Junior University, Bacteriology.
Ph. D., University of Munich.

Bissell, Elizabeth Cacendra, *Madison.*
B. S., University of Wisconsin, Botany, Geology.

Bleifernicht, Edmund Robert, *Watertown.*
B. A., Northwestern University (Watertown), English, German.

Boardman, Eliot, *Salem, Mass.*
B. A., Harvard University, French, Latin, German.

Borgers, William Benjamin, *Madison.*
B. A., University of Wisconsin, Education, Physics.

Brandt, Joseph Granger, *Appleton.*
Ph. B., Lawrence University, Greek, Latin.

Briggs, George Wesley, *Madison.*
B. L., University of Wisconsin, Greek.

Brindley, John Edwin, *Soldiers Grove.*
B. L., University of Wisconsin, History, Political Economy.

Burnett, Earle Smead, *River Falls.*
B. S. in. M. E., University of Wisconsin, French.

Case, Effie, *Madison.*
M. A., University of Wisconsin, English.

Cessna, Orange Howard, *Ames, Ia.*
M. A., Cornell College, History, Political Science.

Clark, Robert Carlton, *Madison.*
M. A., University of Texas, History.

Clum, George Victor, *Earlville, Ill.*
B. A., Ohio State University, History.

Cramer, William Gustavus, *Cincinnati, O.*
B. A., University of Cincinnati, German, Zoology.

Crothers, Hayes Baker, *Ashland.*
B. A., Monmouth College, Education, French.

Darling, Walter Gregory, *Milwaukee.*
B. A., University of Wisconsin, Anatomy.

Davis, Walter Scott, *Richmond, Ind.*
M. A., Cornell University, History.

Dean, Caroline, *Northfield, Minn.*
M. A., Doane College, German.

Deibler, Frederick Shipp, *Deputy, Ind.*
M. A., Harvard University, Economics.

Duncalf, Fred, *Lancaster.*
B. A., Beloit College, German.

Eaton, Mary Agnes, *Wheaton, Ill.*
B. A., Beloit College, German, Latin, Zoology.

Edwards, Ernest Albert, *Ashland.*
B. A., University of Wisconsin, German, History.

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Eggers, Harold Everett, B. S., University of Wisconsin,	*Two Rivers.* Anatomy, Chemistry.
Ellis, Robert Walpole, B. S., University of South Dakota,	*Endeavor.* Botany, Physics.
Ensle, Eva Katherine, B. A., Indiana University,	*Evansville, Ind.* Physics.
Ernst, Adolphine Bianca, B. L., University of Wisconsin,	*Milwaukee.* French, German.
Esten, Ora Daniel, B. A., University of Rochester,	*Beaver Dam.* History.
Evans, Magdalen, B. A., University of Wisconsin,	*Madison.* English, Political Economy.
Fiske, Lulu Blanche, B. A., University of Wisconsin,	*Burlington.* German.
Fleming, Samuel Henry, E. E., Lehigh University,	*Philadelphia, Pa.* Chemistry.
Foreman, Clarence James, M. A., University of Michigan,	*Fairbault, Minn.* History.
Frank, Hermann August, B. A., Northwestern University (Watertown),	*Watertown.* Mathematics.
Frow, James Richard, B. A., Lafayette College,	*Lewiston, Pa.* Anatomy.
Fuerbringer, Ralph Ottomar, B. A., Johns Hopkins University,	*Saginaw, Mich.* Anatomy, Greek.
Gibbons, Robert Oliver, B. L., University of Wisconsin,	*Waukesha.* Botany, Mathematics.
Gillett, Arthur Dudley Samuel, B. L., University of Wisconsin,	*Superior.* Political Economy, Political Science, History.
Goodwin, Frank Parker, B. A., University of Cincinnati,	*Cincinnati, O.* History.
Gove, George Ross, B. A., University of Wisconsin,	*Madison.* Education.
Grabill, Winogene, M. S., Drury College,	*Springfield, Mo.* English, Latin.
Griffin, Hattie Josephine, M. A., University of Wisconsin,	*Crandon.* German.
Hardwick, Francis Tiley, B. A., London University,	*Winona, Minn.* Chemistry, Physics.
Hausmann, John Fred, M. A., University of Wisconsin,	*Madison.* German.
Hein, Willard Henry, Ph. B., University of Wisconsin,	*Mayaguez, P. I.* Botany, Zoology.
Hendrickson, Norman, B. A., University of Wisconsin,	*Albion.* Education.
Hojio, Rikinosuke, B. A., Northwestern University,	*Shidyuokaken, Japan.* German, Spanish, Zoology.
Holdsworth, John Thom, B. A., Drexel Institute,	*Philadelphia, Pa.* Political Economy.
Homburg, Fred, B. S., University of Cincinnati,	*Cincinnati, O.* Chemistry, Mathematics, Political Economy.

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Hornsby, Helen Marcella, *Austin, Tex.*
B. L., University of Texas, German.

Ishizawa, Kyugoro, *Fukushima, Japan.*
M. A., University of Iowa, French, Political Economy.

Jamieson, Gerald William, *Shullsburg.*
B. A., University of Wisconsin, Latin.

King, Leo Hamilton, *Green Bay.*
M. A., Holy Cross College, Anatomy.

Kunerth, William, *La Crosse.*
B. A., University of Wisconsin, Chemistry.

Lamb, William Ash, *Roberts.*
B. A., Ripon College, Education, English.

Langemo, Peter Cornelius, *Kenyon, Minn.*
B. L., University of Wisconsin, Political Economy, Political Science.

Langston, John Mercer, *St. Louis, Mo.*
B. A., Oberlin College, Latin.

Lemke, Charles Frederick, *Wausau.*
B. A., University of Wisconsin, German, History.

MacQueen, Belle, *Rhinelander.*
B. A., Ripon College, German, Latin.

Mangold, George Benjamin, *Sprecht's Ferry, Ia.*
M. A., University of Chicago, History, Political Economy, Political Science.

Mangold, Salena Amelia, *Sprecht's Ferry, Ia.*
B. A., Cornell College, English, German.

Marshall, Frances Belle, *Rensselaer, Ind.*
B. L., University of Wisconsin, Education, Political Economy, English, History.

Mathews, Lois Kimball, *Stanford University, Cal.*
B. A., Leland Stanford Junior University, History.

Maxon, Jesse Garfield, *Walworth.*
B. S., Milton College, Political Economy, Mathematics, Geology.

McClernan, Marie, *Madison.*
Ph. D., University of Wisconsin, Latin.

McCulloch, Lucia, *Madison.*
B. S., University of Florida, Education, Botany, Geology, Psychology, Zoology.

McNeil, Anne Holmquist, *Janesville.*
Ph. M., University of Wisconsin, Anatomy.

Merrick, Jessie Bee, *Madison.*
Ph. B., University of Wisconsin, Anatomy, Physical Culture.

Merrill, Harriet Bell, *Milwaukee.*
Ph. B., University of Wisconsin, French, Spanish.

Merrill, Julia Wright, *Cincinnati, O.*
B. L., University of Illinois, Political Economy.

Metcalf, Harold, *Blandinsville, Ill.*
B. A., Lombard College, Political Economy.

Milbradt, Herman Gustav, *Edgar.*
B. L., University of Wisconsin, Latin.

Miller, Maud Elsa, *Neenah.*
B. A., University of Wisconsin, German.

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Morrill, Jenny Hughes, *Atlanta, Ga.*
M. A., University of Wisconsin, Economics, History.

Moseley, Anna Burr, *Madison.*
M. A., University of Wisconsin, History, Latin.

Moseley, Flora Caroline, *Madison.*
B. L., University of Wisconsin, English, History.

Mott, Florence Beatrice, *Neenah.*
M. A., University of Wisconsin, Political Science, History.

Murphy, Julia Ellen, *Madison.*
B. L., University of Wisconsin, History.

Mutchler, Kate, *Madison.*
B. A., University of Wisconsin, Political Economy, Botany.

Nakayama, Goro, *Sasayama, Japan.*
Graduate, Tokio Higher Commercial School, Political Economy, Political Science.

Nelson, James Carlton, *Dubuque, Ia.*
M. A., Hanover College, History.

Noyes, Helen Strong, *Oshkosh.*
B. L., University of Wisconsin, German.

Otterson, Andrew, *Madison.*
Ph. B., Beloit College, Mathematics.

Parlin, Charles Coolidge, *Wausau.*
B. A., University of Wisconsin, History.

Pelton, Anna May, *Madison.*
B. L., University of Wisconsin, German, Latin.

Perdue, Rosa Maud, *Madison.*
M. A., University of Wisconsin, History.

Pray, Carl Esek, *Milwaukee.*
B. L., Olivet College, History.

Putnam, James William, *Evanston, Ill.*
M.A., Cornell University, Political Economy.

Rankin, May Mitchell, *Waukesha.*
B. A., Carroll College, English, Psychology.

Rathjen, Edwin Frederick, *Milwaukee.*
B. A., University of Wisconsin, Chemistry.

Reed, George Matthew, *Madison.*
M. A., University of Wisconsin, French, Botany.

Reed, Harold Bushnell, *Cleveland, O.*
B. A., Oberlin College, English, Physics, Physical Culture.

Rogers, George Arthur, *Rice Lake.*
Ph. B., University of Wisconsin, Chemistry, Geology, Physics.

Rood, Warren Ray, *Milton.*
B. A., Milton College, Education, Psychology.

Rübel, Katherine C., *Rockford, Ill.*
B. A., Rockford College, German.

Schlabach, Otto Maxwell, *La Crosse.*
Ohio Wesleyan University, Commerce, Political Economy, History, Political Science.

Schmidt, Edward William, *Northfield, Minn.*
M. A., University of Wisconsin, Botany, Geology, Zoology.

Schmidt, Gustavus A., *Sterling, Ill.*
B. A., University of Illinois, Botany.

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Schmidt, Louis Bernard, *Waterloo, Ia.*
Ph. B., Cornell College, History, Political Economy.

Scott, Robert Bruce, *Aurora, Ill.*
Ph. B., University of Pennsylvania, Political Science, History.

Sharon, John Albertus, *Paris, Ky.*
Ph. B., State College of Kentucky, French, Physics.

Shipe, Maud Margaret, *San Marcos, Tex.*
M. A., University of Texas, Education.

Shockley, Dale Curry, *Lamont.*
B. A., University of Wisconsin, History, Political Science.

Sime, Diana L., *Fennimore.*
Ph. B., University of Wisconsin, English.

Slinde, Imelia Josephine, *De Forest.*
B. L., University of Wisconsin, German, History.

Smith, Ernest Bradford, *Madison.*
B. L., University of Wisconsin, Political Economy, Political Science.

Tuthill, James Edward, *Madison.*
M. A., University of Missouri, German, Political Economy.

Wenizirl, John, *Albuquerque, N. M.*
M. S., University of Wisconsin, Bacteriology, Chemistry.

Weniger, Willibald, *Milwaukee.*
B. A., University of Wisconsin, Chemistry, Mathematics.

Whealdon, Albert D., *Superior.*
B. A., University of Missouri, Chemistry.

White, Jennie Patterson, *Lansing, Mich.*
M. A., University of Michigan, Education, English, Political Economy.

White, Marion Ballantyne, *Champaign, Ill.*
Ph. B., University of Michigan, Mathematics.

Wilgus, James Alva, *Platteville.*
M. A., Ohio State University, History, Political Economy, Political Science.

Williamson, Charles Clarence, *Salem, O.*
B. A., Western Reserve University, Political Economy, History.

Wilson, Alice M., *Webster City, Ia.*
Ph. B., Iowa College, English, History, Botany.

Wilson, John Thomas, *Beaver Dam.*
B. A., Indiana University, Education.

Wing, Elizabeth, *La Crosse.*
B. A., University of Wisconsin, History, Political Science, Home Economics.

Wright, Grace Anna, *Janesville.*
B. L., University of Wisconsin, History.

Yaggy, Ira D., *Nora Springs, Ia.*
B. L., Cornell College, Botany, Physics, Zoology.

—125

Undergraduates and Teachers

Allen, Henry Coburn, *Indianapolis, Ind.*

Althoff, Gustav Alexander, *Milwaukee.*

Anderson, Elvin Douglas, *North Crandon.*

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Anderson, Nels Andreas,	*Chetek.*
Anderson, William Tait,	*Oshkosh.*
Artzberger, Emil Godfred,	*Helenville.*
Atwood, Walter,	*Madison.*
Baker, George Jacob,	*Alma Center.*
Baker, Helen L.,	*Colton, N. Y.*
Baker, John Clark,	*Ridgeway, Ia.*
Baker, Joseph Henry,	*Madison.*
Baker, Vernon,	*Gaffney, S. C.*
Banks, Alfrida Pauline,	*Chicago, Ill.*
Barber, Sarah Curwen,	*Oshkosh.*
Barker, Blanche Jessie,	*Madison.*
Barnes, Volney Goodrich,	*Bloomington.*
Barney, Godfrey Waldo,	*Mauston.*
Barrows, Edward Morley,	*Columbus, O.*
Bartelt, George,	*Milwaukee.*
Bauch, Charles W.,	*Milwaukee.*
Bauer, Oscar Hugo,	*Juneau.*
Beebe, Matthew Ross,	*Wausau.*
Bentzien, Emil William,	*Milwaukee.*
Berg, Jettie Emerle,	*Poplar Grove, Ill.*
Berge, Matthew Garland,	*Eau Claire.*
Bewick, Grace Beatrice,	*Madison.*
Bewick, Thomas Lyman,	*Madison.*
Blied, Frank C.,	*Madison.*
Bolgie, William August,	*Little Chute.*
Bonfoey, Jennie Prudence,	*Milwaukee.*
Boss, Lorena,	*West Allis.*
Boucher, Nettalie,	*Oshkosh.*
Boyd, Merritt Edwin,	*Madison.*
Bradford, Roy Charles,	*Madison.*
Bray, Margaret Hazel,	*Oshkosh.*
Brennecke, Alvina Mary,	*Watertown.*
Brey, Peter Francis,	*Algoma.*
Brockert, Clarence,	*Bagley.*
Broughton, Ray,	*Evansville.*
Browne, Carrie Olive,	*Omaha, Neb.*
Buchholz, Louise Augusta,	*Appleton.*
Buck, Roy Warren,	*Berlin.*
BuDahm, Louis August,	*Hortonville.*
Burling, Beverly Burdette,	*Madison.*

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Burnett, Eleanor Louise,	*Madison.*
Cary, Lucian Herbert,	*Madison.*
Casey, Edwina Mary,	*Madison.*
Cavanaugh, James Franklin,	*Kenaskum.*
Cawthorne, George Burton,	*New Lisbon.*
Clifton, Archie Roy,	*Madison.*
Colburn, Willis Paul,	*Madison.*
Cole, Adrian H.,	*Madison.*
Collie, Ralph Waldo,	*Merrill.*
Collins, Elizabeth Sheldon,	*Shullsburg.*
Conger, Theodore Hedges,	*Madison.*
Conley, Edwin Martin,	*Superior.*
Cook, Alva Henry,	*Milton Junction.*
Cook, Robert William,	*Green Bay.*
Cooper, Belva Naomi,	*Rochester.*
Crain, Edward Patrick,	*Eldorado.*
Curtis, Raymond William,	*Waupun.*
Dahl, Theodore Rudolph,	*Stoughton.*
Davee, Henry A.,	*Madison.*
Dean, Albert Briggs,	*Madison.*
DeLap, Darwin,	*Kansas City, Mo.*
Delwiche, Edmond Joseph,	*Lincoln.*
Desmond, Mary J.,	*Milwaukee.*
Dickerson, Harry Wadsworth,	*Earlville, Ill.*
Dixon, Sara,	*Waukesha.*
Dodd, Gertrude Pearl,	*Wauwatosa.*
Dodge, Bernard Ogilvie,	*Algoma.*
Downing, Fred Price,	*Wausau.*
Duke, Henry Clay,	*Madison.*
DuMez, Andrew Grover,	*Cashton.*
Dyrud, Tillie,	*Baraboo.*
Edwards, Laura Orinda,	*Mauston.*
Eierman, Arthur Charles,	*Milwaukee.*
Eimer, Edna,	*Milwaukee.*
Ellefson, Mabel Selma,	*Madison.*
Elliott, Elizabeth,	*Holton, Kan.*
Ellis, Amy Gertrude,	*Mazomanie.*
Enright, John Joseph,	*Madison.*
Eriksen, Frederick Esburne,	*Wauwatosa.*
Erwin, Edith Josephine,	*Milwaukee.*
Evert, Karl,	*Madison.*

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Eyman, Elmer Vail,	*Evanston, Ill.*
Fadner, Lydia Elizabeth,	*Superior.*
Fidelis, Sister Mary,	*Madison.*
Fieldhouse, Carrie Myrtle,	*Livingston.*
Findlay, Albion Roy,	*Madison.*
Fitch, Mary Amelia,	*Omaha, Neb.*
Fitzgerald, William Lennox,	*Milwaukee.*
Flick, Ernest Clinton,	*Augusta.*
Fobes, Merton P.,	*Marshall, Minn.*
Ford, Annie Gordon,	*La Crosse.*
Foster, Willie Swann,	*San Marcos, Tex.*
Freeman, James Richard,	*Ft. Pierre, S. D.*
Fries, Scott Winters,	*Richland Center.*
Garms, Minnie Frederica,	*Aurora, Ill.*
Gates, Martin Jabo,	*Jefferson.*
Gaynor, William Patrick,	*Hortonville.*
Gerlach, Lydia Emma,	*Chicago, Ill.*
Gesell, Egbert George,	*Tomahawk.*
Gibbons, Gertrude Marie,	*Sharon.*
Gilbert, Otto Gustav,	*Milwaukee.*
Gillan, Silas Lee,	*Milwaukee.*
Goe, Ruth,	*Madison.*
Goebel, Joseph Paul,	*Eden.*
Gordon, Mabel Jean,	*Waupaca.*
Grady, Albert William,	*Port Washington.*
Gruhl, Edwin Frederick,	*Milwaukee.*
Hall, Edgar Albert,	*Omro.*
Hall, Lucy,	*Watertown.*
Hall, William Oscar,	*Richland Center.*
Halsey, Cora Moore,	*Oshkosh.*
Hambrecht, Elizabeth,	*Middleton.*
Hamilton, Frederic Rutherford,	*Richland Center.*
Hammersley, Ellen,	*Madison.*
Hanaman, Wallace Winfred,	*Milwaukee.*
Hanson, Charles,	*Monroe.*
Hart, Simeon Thompson,	*Farmington, Conn.*
Harter, Emma Leona,	*Gotham.*
Harter, Sarah Isabel,	*Sandwich, Ill.*
Hartwell, Edith Leola,	*Plover.*
Hatch, Lisle Campbell,	*Black Earth.*
Hatz, Anna Barbara,	*Bangor.*

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Hatz, Julia,	*Bangor.*
Hayes, Edward Alvaro,	*Wauwatosa.*
Hayes, Maude,	*Helenville.*
Hedges, Clair Frank,	*Neenah.*
Helmer, Carrie Margaret,	*Plymouth.*
Homuth, Erwin Silas,	*Madison.*
Howell, Daniel Banjamin,	*Dousman.*
Hoyt, Florence Hastings,	*Evanston, Ill.*
Huber, Grace Emmo,	*Helena, Mont.*
Iakisch, John Rudolph,	*Granton.*
Jackson, James Albert, Jr.,	*Madison.*
Jacobson, Ernst,	*Clinton Junction.*
Janisch, Emma Emilie,	*Waterloo.*
Jaroch, Frank,	*Milwaukee.*
Jenks, Frank,	*Dodgeville.*
Jessup, John,	*Chicago, Ill.*
Johnson, Isabel Reid,	*Portage.*
Johnson, Marjorie Daw,	*Madison.*
Joseph, Sister Mary,	*Sinsinawa.*
Kaltenborn, Walter George von,	*Merrill.*
Kalvestran, Lars Alfred Marion,	*Viroqua.*
Karrow, Herman Henry,	*Milwaukee.*
Kempthorne, William Bismarck,	*Platteville.*
Killen, Sherman John,	*Cato.*
King, Julia Elizabeth,	*Bangor.*
Kirst, Ottilie Louise,	*Waunakee.*
Klingholz, Oscara,	*Manitowoc.*
Krahn, William Otto Herman,	*Milwaukee.*
Kruell, George John,	*Milwaukee.*
Kruse, William Robert,	*Indianapolis, Ind.*
Kuehmsted, Arthur Odin,	*Appleton.*
Kuehnast, Ida Emilie,	*Stevens Point.*
Kutschera, William Jacob,	*Milwaukee.*
Lamfrom, Leon Benedict,	*Milwaukee.*
Latta, Grace Deborah,	*Antigo.*
Lea, Clara Alice,	*Madison.*
Lee, Emma Louise,	*Beloit.*
Lee, Nellie Anna,	*Chicago, Ill.*
Leete, Dwight Goodrich,	*Sparta.*
LeFebre, Clarence Charles,	*Green Bay.*
Lewis, Lawrence Brownell,	*Clarinda, Ia.*

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Losse, Herbert Alfred,	*Milwaukee.*
Luckenbach, Walter Conrad,	*Oconto.*
Luеders, August Henry,	*Chicago, Ill.*
Luening, Edwin Garfield,	*Milwaukee.*
Lutman, Benjamin Franklin,	*Joplin, Mo.*
Lyon, Ruth Erema,	*Madison.*
MacIntosh, Frances Mary,	*Medford.*
MacKowen, Harriett Estelle,	*West Allis.*
MacMurtery, Katherine,	*Waupaca.*
Mariola, Sister,	*Sinsinawa.*
Mase, Walter G.,	*Argyle.*
McClatchie, Lela Annette,	*Augusta.*
McCormick, Edith Trafton,	*Sparta.*
McDirmid, Lillian,	*Northfield.*
McGillivray, William J.,	*Black River Falls.*
McKee, Ida,	*Montzuma, Ia.*
Mendez, Lauro Lopez,	*Apam, Mex.*
Merrill, Natalie,	*Cincinnati, O.*
Metz, John Joseph,	*Milwaukee.*
Meyer, Lydia Lucile,	*Milwaukee.*
Miltenberger, Robert Edgar,	*Randolph.*
Modlin, William Perry,	*Hartford City, Ind.*
Monakhow, Dmitri,	*St. Petersburg, Russia.*
Moran, Margaret Theresa,	*Stevens Point.*
Morgan, John Jeremiah,	*Cascade.*
Muench, Joseph Frederick,	*Buffalo.*
Mulcahy, Max John,	*Madison.*
Nelson, Olga Theresa,	*Racine.*
Nelson, Tillie Eliza,	*Madison.*
Neprud, Martha,	*Westby.*
Olmsted, Lewis William,	*Boone, Ia.*
O'Neill, Margaret M.,	*Green Bay.*
Oppen, Lucy Hiddessen,	*Milwaukee.*
Ott, Edwin,	*Oak Park, Ill.*
Owen, Mary Elizabeth Hodges,	*Lauderdale Lakes.*
Pace, Siedler Nelson,	*Culpeper, Va.*
Parmley, Herman Joseph,	*Mineral Point.*
Partridge, Elva Edyth,	*Cross Plains.*
Pengra, Marshal Hylon,	*Madison.*
Peterson, Nels John	*Marinette.*
Pettigrew, Bessie,	*Sioux Falls, S. D.*

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Pettijohn, John J.,	*Menomonee Falls.*
Pierson, Clementine Mary,	*Oshkosh.*
Potter, Grace Elizabeth,	*Waupun.*
Pray, Katharine Rebecca,	*Stevens Point.*
Preston, Charles Herbert,	*Westfield.*
Prideaux, Nettie G.,	*Mineral Point.*
Putnam, Lotta Belle,	*Carthage, Mo.,*
Rabe, Henry Albert	*Neenah.*
Rahn, Bruno,	*Milwaukee.*
Rankin, Carrie Adela,	*Waukesha.*
Ray, Clarence Rufus,	*Pardeeville.*
Reese, Spencer Phillip,	*Evansville.*
Rickerman, Jay Edgar,	*Sullivan.*
Riggs, Lucia Melvina,	*Crandon.*
Riley, Martha Kendrick,	*Darlington.*
Riley, Miles Charles,	*South Milwaukee.*
Roberts, Eck Crippen,	*Madison.*
Roecker, William Frederick,	*Plymouth.*
Roehl, Julius Otto,	*Milwaukee.*
Rogers, Paul Bullen,	*Milwaukee.*
Rosenheimer, Newton William,	*Kewaskum.*
Runge, Alma Matilda,	*Madison.*
Ruth, Sister Mary,	*Sinsinawa.*
Ryder, Julia,	*Fond du Lac.*
Saby, Anna Gunella,	*Baldwin.*
Sanderson, Katharine Moore,	*Madison.*
Sayles, Eva,	*Black Earth.*
Schlafer, Adeline Louise,	*Menomonee Falls.*
Schneller, Anna Margareth,	*Prairie du Sac.*
Schubring, Selma Langenhan,	*Madison.*
Schuman, E. W.,	*Milwaukee.*
Schweitzer, Amelia,	*Chicago, Ill.*
Severin, Henry Herman Paul,	*Milwaukee.*
Shaw, Edwin,	*Milton.*
Sievers, Arthur Frederick,	*New Holstein.*
Simons, Dora May,	*Shawano.*
Sloanaker, Sarah Elizabeth,	*Milwaukee.*
Smith, Maud Emily.	*Burlington.*
Steil, William Nicholas,	*Belleville.*
Steinke, Laura Anna,	*Superior.*
Stephenson, Willard L.,	*South Bend, Ind.*

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Stockman, Rebecca,	*Milton Junction.*
Storr, Frederick Montgomery,	*Malden, Mass.*
Stout, Arlow Burdette,	*Edgerton.*
St. Sure, Jeannette Linsfield,	*Madison.*
Sullivan, Kathryn,	*Adrian, Minn.*
Swann, Nancy Lee,	*Tyler, Tex.*
Swett, Maud,	*Milwaukee.*
Swint, Katherine Marie,	*Madison.*
Switzer, Willis Elihu,	*Clintonville.*
Ternes, Louise Catherine,	*Mineral Point.*
Thompson, Annie,	*Washington, D. C.*
Thompson, Robert Kirk,	*Milwaukee.*
Thorndyke, Elizabeth Faulkner,	*Newport, Ky.*
Thursby, Claire Cordelia,	*Madison.*
Thwaites, Fredrick Turville,	*Madison.*
Tighe, Benjamin B.,	*Clinton.*
Tobenkin, Elias Isaac,	*Madison.*
Toepfer, Selma Harriet,	*Madison.*
Torphy, Michael Ambrose,	*Pittsville.*
Trelease, Frank Johnson,	*St. Louis, Mo.*
Ulrich, Elfa Louise,	*Milwaukee.*
Van Hise, Olive May,	*Demorest, Ga.*
Vaughan, Lulu,	*Wauzeka.*
Vaughan, May Constance,	*Milwaukee.*
Vetting, Ida Fredericka,	*Rhinelander.*
Wahl, Harry Roswell,	*Stratford.*
Warren, Wheeler,	*Milwaukee.*
Washburn, Martha Louise,	*Sturgeon Bay.*
Wehausen, George Washington,	*Madison.*
Wendt, Robert Charles,	*Shawano.*
Wheeler, Mabel Augusta,	*St. Louis, Mo.*
White, Charlotte Eleanor,	*Madison.*
White, Rhoda Mabel,	*Madison.*
Whitney, Elizabeth Day,	*Milwaukee.*
Wieman, Emma Pauline,	*Colorado City, Col.*
Williams, Arthur James,	*Albany.*
Williams, Daniel S.,	*Whitehall, Mont.*
Williams, Hadwen Harry,	*Monona, Ia.*
Wilson, L. Elizabeth,	*Webster City, Ia.*
Winden, Guida Constance,	*Madison.*
Woffenden, Adah Annastasia,	*Madison.*

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Wright, Frederick Thomas, *Chicago, Ill.*
Wright, Mary Louise, *Madison.*
Zeidler, Richard, *Howard Lake, Minn.*
Zellhoefer, Marilla, *Wausau.*
Zimmerman, Anna, *Freeport, Ill.*

—295

SUMMER SESSION FOR APPRENTICES AND ARTISANS

Graduates.

Ard, Charles Edgar, *Agricultural College, Miss.*
B. S. in M. E., Georgia School of Technology, Applied Electricity, Machine Design, Electro-Chemistry, Mathematics, Physics.

Atkinson, Thomas Wilson, *Baton Rouge, Ga.*
B. S. in C. E., Louisiana State University, Applied Electricity, Machine Design,

Coggeshall, Allan, *Columbus, O.*
E. E., Columbia, Applied Electricity, Mathematics,

Duncan, Marvin D., *Stephensville, Tex.*
B. S., John Tarleton College, Shop Work, Manual Training.

Fullan, Michael Thomas, *Auburn, Ala.*
B. S. in. M. E., Alabama Polytechnic Institute, Steam Engineering, Mathematics,

Gainer, Frank Butler, *Monmouth, Ill.*
B. A., Monmouth College, Steam Engineering. Applied Electricity, Machine Design. Physics.

Grossman, August, *Madison.*
A. B., Harvard, Mathematics, Physics. Shop Work,

Hale, Berndt Severin, *Waupaca.*
M. A., Wisconsin, Manual Training.

Phillips, Henry Laird, *St. Louis, Mo.*
B. S. in E. E., Pennsylvania, Shop Work.

Smith, Francis de Sales, *Washington. D. C.*
M. S., Catholic University of America, Steam Engineering, Shop Work, Materials of Construction, Manual Training.

Whitford, Alfred Edward, *Milton.*
A. B., Chicago, Applied Electricity, Machine Design, Mathematics,

Woods, Harry Irwin, *Topeka. Kan.*
A. B., LaFayette College, Steam Engineering, Applied Electricity, Shop Work, Physics.

—12

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Undergraduates

Abbott, Harry Scott,	*Madison.*
Anderson, Peter Melvin,	*Mt. Horeb.*
Ball, Edwin Marcotte,	*Madison.*
Booth, Florence Evelyn,	*Chicago, Ill.*
Braun, Adolph Rudolph,	*Milwaukee.*
Braun, Rudolph,	*Milwaukee.*
Broecker, Henry John,	*Racine.*
Cave, Stephen French,	*Baldwin.*
Christianson, David,	*Madison.*
Claus, Wesley William,	*Dubuque, Ia.*
Cooley, Ozro Ivars,	*Torrington, Conn.*
Compton, Arthur Mandeville,	*Davenport, Ia.*
Cunningham, John Wilbur,	*Madison.*
Cutler, Joseph Albert,	*Dodgeville.*
Dysart, Elmer Olonzo,	*Cleveland, O.*
Early, Richard,	*W. LaFayette, Ind.*
Eaton, Elton,	*Cuba, N. Y.*
Egelhoff, Robert Fred,	*Milwaukee.*
Ellguth, Paul Robert,	*Madison.*
Elwood, William Drennen,	*Sac City, Ia.*
Fairchild, Fred Guy,	*Plankinton, S. D.*
Falk, Harold Sands,	*Milwaukee.*
Feige, Heinrich,	*Madison.*
Fermann, Wilhelm Elbert,	*Stoughton.*
Field, Forrest Whipple,	*Sharon.*
Field, Guy Alden,	*Sharon.*
Fjelstad, Herman,	*LaCrosse.*
Flemming, Frank Elmer,	*Chicago, Ill.*
Froehlich, Frank Richard,	*Glenbeulah.*
Frost, Frank Sumner,	*Evansville.*
Fuerste, Charles,	*Guttenberg, Ia.*
Fuller, Clifford Solon,	*Madison.*
Gray, Glenn Arthur,	*Oregon.*
Grenamyer, Arthur Garfield,	*Leetonia.*
Gruenhagen, Richard Elmer,	*Oshkosh.*
Grunert, Arthur Earl,	*Madison.*
Hall, Charles Joseph,	*Madison.*
Hamann, Friedrich,	*Milwaukee.*
Heller, Harry Leopold,	*Milwaukee.*
Henke, Fred Christian,	*Wautoma.*

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Hibbard, Allen Charles,	*Milwaukee.*
Hirschberg, Ernest Samuel,	*Milwaukee.*
Irving, Adam Henry,	*Galt, Ontario.*
Iseminger, Alonzo Amos,	*Elwood, Ind.*
Jackson, Manley Spencer,	*La Crosse.*
Johns, Edward Francis,	*Madison.*
Johnson, Eduard,	*Madison.*
Ketchum, Wesley Merritt,	*Madison.*
Kirk, Allen Taylor,	*Chicago, Ill.*
Koch, Frederick Herbert,	*Milwaukee.*
Lehman, Otto Leo,	*Green Bay.*
Lieber, William Henry,	*Milwaukee.*
Lurie, Arnold Nathaniel,	*Chicago, Ill.*
Marson, Fred,	*Toronto, Canada.*
McCoy, Lloyd Baxter,	*Milwaukee.*
Miller, Warner,	*St. Louis, Mo.*
Miller, William Boyd,	*Pittsburg, Pa.*
Mott, Charles Smith,	*Milwaukee.*
Mumm, Edward Franklin,	*Wausau.*
Nash, Paul Hayne,	*Clinton, S. C.*
Osborne, Robert Chess,	*Milwaukee.*
Rector, Mark Davis,	*Chicago, Ill.*
Rice, Ernest Frederic,	*Milwaukee.*
Rosier, Frank Burdette,	*Hartford.*
Sargent, Julian Downing,	*Milwaukee.*
Sayre, Herbert Atkins,	*Perry, Ia.*
Schilling, Henry Frederick,	*Mason City, Ia.*
Schwarting, Weber Herbert,	*Milwaukee.*
Sears, Louis Charles,	*Milwaukee.*
Sellers, Stansmore Donald,	*Dodgeville.*
Smeaton, Charles Alexander,	*Whitewater.*
Sterling, William John,	*Fall River, Mass.*
Taggart, William Ardis,	*Chicago, Ill.*
Thickens, John Herman,	*Appleton.*
Thomas, William Moses,	*Collansville, Ill.*
Turney, Clarence Burt,	*Mitchell, S. D.*
Van Hook, Wendell Alexander,	*Pittsburg, Pa.*
Vaughn, Sidney R.	*Logansport, Ind.*
White, Charles Harold,	*Moline, Ill.*
Woodstock, Charles Blhum,	*Lima Center.*

—80

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SUMMER DAIRY SCHOOL

Back, Jacob,	*Grafton.*
Bessert, Gustav Michael,	*Wausau.*
Fedler, John,	*Cadotte.*
Godoy, Henry Victor,	*Buenos Ayres, Argentine Rep.*
Graf, Frederick Adolph,	*Butternut.*
Hafermann, William Frederick,	*Waucousta.*
Harvat, Flava,	*Eastman.*
Jeffreys, Herbert Castleman,	*London, England.*
Kohl, Louis M.,	*Auburndale.*
Mayer, Joseph Anthony,	*Hanes Corners.*
Miller, Marguerite A.,	*Orangeburg, S. C.*
Oliver, Albert,	*Galesville.*
Peterson, William August,	*Amherst.*
Simmons, Miner,	*Auburndale.*
Wekert, Otto,	*Waterloo.*
Zeier, Jacob Englebert,	*Burke.*

—16

SCHOOL OF MUSIC

Graduates

Blum, Emma Marie,	*Madison.*
Breitenfeld, Ella Meta,	*Madison.*
Hansen, Daisy Etta,	*Madison.*
Harper, Blanche,	*Madison.*
McLean, Marguerite Louise,	*Menomonie.*
Pickarts, Mary,	*Madison.*
Ransom, Lyla,	*Madison.*
Wagner, Meta,	*Madison.*

—8

Collegiate

FOURTH YEAR

Baas, Alexius Henry,	*Madison.*
Buehler, Elizabeth,	*Monroe.*
Graves, Edna Lora,	*Brooklyn.*
Hatleberg, Anna Helen,	*De Forest.*
Klussman, Josephine,	*Madison.*
Lang, Stella,	*Madison.*
Lavin, Bessie,	*Madison.*
Lien, Hannah,	*Granite Falls, Minn.*
McKay, Alice Vienna,	*Madison.*

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Olson, Harriet Maybelle,	*Cambridge.*
Pape, Louise,	*Madison.*
Sanders, Otilda,	*Perry.*
Theobald, Almina Mae,	*Madison.*

—13

THIRD YEAR

Allyn, Horace,	*Madison.*
Ballard, Catherine,	*Madison.*
Ballard, Clara Emily Susannah,	*Madison.*
Byrne, Agnes,	*Madison.*
Douglas, May Ella,	*Madison.*
Evans, Alice Esther,	*Spring Green.*
Fairchild, Laura,	*Madison.*
Farnum, Isabel Monica,	*Madison.*
Gibbons, Frank C.,	*Sun Prairie.*
Glen, Mary Alice,	*Madison.*
Grow, Grace Lillian,	*Neillsville.*
Haner, Cordelia,	*Sun Prairie.*
Houghton, Grace,	*West Salem.*
Lang, Bertha Alice,	*Madison.*
Maurer, Erna E.,	*Arcadia.*
Norsman, Cora Miriam,	*Madison.*
Norton, Sara Evelyn,	*Poynette.*
Roach, Clara Maud,	*Waterloo.*
Taylor, Jennie May,	*Madison.*
Teisberg, Julia,	*Stoughton.*
Webber, Jessie Myrtle,	*Abilene, Kan.*
Zimmerman, Louise,	*Madison.*
Zumdahl, Susie Dorothy,	*Mt. Morris, Ill.*

—23

SECOND YEAR

Abbott, Clarice Belle,	*Madison.*
Alexander, Fay,	*Fort Atkinson.*
Alford, Hazel Viola,	*Madison.*
Anderson, Vinnie Bertine,	*Stoughton.*
Bergen, Lillian,	*Madison.*
Berkey, Ena,	*Monroe.*
Brunk, Vena Clifford,	*Chicago, Ill.*
Breitenbach, Mabel Rose,	*Madison.*
Buchanan, Iva Luella,	*Rio.*
Burnham, Margaret Eleanor,	*Madison.*

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Cawley, Margaret Gray,	*Pipestone, Minn.*
Cole, Minnie Bruins,	*Madison.*
Collin, Daisy,	*Lodi.*
Comstock, Lelia,	*Oregon.*
Confer, Edna Lorene,	*Madison.*
Dahle, Marie Genevieve,	*Mt. Horeb.*
Davidson, Mabel,	*Madison.*
Day, Genevieve,	*Evansville.*
Duncan, Mabel Adeline,	*Darlington.*
Durst, Mae Louise,	*Monroe.*
Elmer, Famee Rebecca,	*Monroe.*
Etter, Inez Martha,	*Monroe.*
Fisher, Bertha Miriam,	*Madison.*
Fraser, Elizabeth,	*Madison.*
Gallagher, Sarah Ellen,	*Madison.*
Gilman, Flora Moseley,	*Madison.*
Harker, Iola Maria,	*Shellsburg.*
Hobbins, Grace,	*Madison.*
Hurd, Margaret,	*Chippewa Falls.*
Johnson, Margaret Isabel,	*Sheridan.*
Jones, Marion Osgood,	*Sheboygan.*
Ketchpaw, Irma Louise,	*Madison.*
Ketchpaw, Maude Luella,	*Madison.*
Mills, Genevieve Maria,	*Madison.*
Montgomery, Olive,	*Madison.*
Moore, Grace Agnes,	*Madison.*
Moss, Ruth Elizabeth,	*Milwaukee.*
Mulcay, Joseph George,	*Watertown.*
Nebel, Elizabeth Katherine,	*Madison.*
Neber, Frederick Bernard,	*Shawano.*
Olson, Mollie,	*Madison.*
Otis, Mary Lyman,	*Madison.*
Otterson, Andrew,	*Madison.*
Ottum, Annette Helena,	*McFarland.*
Perkins, Florence Edna,	*Waukesha.*
Pound, Martha Edith,	*Madison.*
Ray, George Rankin,	*Waukesha.*
Rhodes, George Wallace,	*Galesville.*
Richmond, Fannie Ruth,	*Morrison, Ia.*
Rietow, Rhoda Henrietta,	*Sheboygan.*
Sanders, Belinda Maria	*Madison.*

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Smith, Josephine,	*Madison.*
Smythe, Blanche Jessie,	*Madison.*
Waller, Frank Laird,	*Menomonie.*
Waterman, Justine,	*Madison.*
Wellman, Lulu,	*Madison.*
Whitelaw, Edith Mabel,	*Lodi.*
Wood, Norma Curtis,	*Madison.*
Wynne, Carrie,	*Madison.*

—59

FIRST YEAR

Albright, Emma,	*Madison.*
Aldrich, Loyal Blaine,	*Milwaukee.*
Anderson, Julia Belle,	*Deerfield.*
Angell, Nellie Nadine,	*Sun Prairie.*
Anderson, Sarah Janette,	*Madison.*
Bates, Warren Carver,	*Madison.*
Bechlem, Alfred William,	*Plymouth.*
Bewick, Grace Beatrice,	*Madison.*
Bird, Mary Willamette,	*Sioux Falls, S. D.*
Bissell, Elizabeth,	*Madison.*
Bitter, Elsa Anna,	*Sheboygan.*
Boley, Arthur,	*Sheboygan.*
Boston, Edith,	*Madison.*
Boyles, Nellie,	*Madison.*
Brandt, Dikka Margaret,	*McFarland.*
Bridge, Ethel Nancy,	*Monroe.*
Brindley, Grace Leigh,	*Boscobel.*
Brown, Edna M.,	*Rhinelander.*
Brown, Florence Mary,	*Spring Green.*
Carstens, Fred Henry,	*Michigan City, Ind.*
Cole, Felix,	*Washington, D. C.*
Cornell, Harold Edward,	*Kaukauna.*
Davenport, Audrey Amazon,	*Madison.*
Davenport, Jessie Nell,	*Madison.*
Delany, Hazel Annie,	*Poynette.*
Donovan, Margaret Monica,	*Madison.*
Dunne, Laura Dorothy,	*Madison.*
Eierman, Arthur Charles,	*Milwaukee.*
Ellsworth, Fanny,	*Madison.*
Fehlandt, Elsie Louise,	*Madison.*
Fenton, Theo,	*Madison.*

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Fridd, Blanche,	*Valley City, N. D.*
Gardner, Laura,	*Chicago, Ill.*
Gilbert, Florence Ethel,	*Stoughton.*
Gilfillan, Ella Barbara,	*West Salem.*
Glasier, Emma Bell,	*Bloomington.*
Green, Maud Edna,	*Brodhead.*
Grove, Helen Theo,	*Madison.*
Grover, Alice Mary,	*Madison.*
Haugen, Constance,	*Madison.*
Hickman, Arthur,	*Madison.*
Hoefer, Laura Luella,	*Freeport, Ill.*
Holty, Martin Noel,	*Madison.*
Humphrey, Charlotte,	*Sheboygan Falls.*
Jennings, Helen,	*Madison.*
Jones, Ella,	*Platteville.*
Kelley, Mabel,	*Blooming Grove.*
Kirkpatrick, Woodward,	*Superior.*
Klinefelter, Barbara Hazel,	*Madison.*
Larsen, Lulu May,	*Wiota.*
Larson, Mabel Claire,	*Madison.*
Lewis, Margaret Elizabeth,	*Madison.*
Long, Arthur Edwin,	*Madison.*
Maine, George Edwin,	*La Crosse.*
Magee, Stella Adell,	*Evansville.*
Manhart, Clarence Eugene,	*Hillsborough.*
Manhard, Ella Lucca,	*Madison.*
Meyer, Alice,	*Madison.*
Michelson, Alma Gertha,	*Mt. Horeb.*
Millar, Mary Wright,	*Mattoon, Ill.*
Montgomery, Alice Norris,	*Madison.*
Moore, Herbert Fisher,	*Madison.*
Moos, William Henry,	*La Crosse.*
Morgan, Sarah Blanche,	*Madison.*
Mueller, Erma Voshardt,	*Two Rivers.*
Nelson, Susan,	*Madison.*
Niven, Robert Marcus,	*Sheridan.*
O'Grady, Elizabeth Cecelia,	*Madison.*
Oppin, Lucy Hiddessin,	*Stoneham, Mass.*
Oren, Arthur Baker,	*Madison.*
Osborne, Patricia Mary,	*Madison.*
Patterson, Zenia Marguerite,	*Cambridge.*

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Pengitty, Richard,	*Mt. Horeb.*
Penshorn, John Carl,	*Milwaukee.*
Pettigrew, Bessie,	*Sioux Falls, S. D.*
Quisling, Andreas,	*Madison.*
Randa, William Henry,	*Montello.*
Rau, Belden Brosse,	*Beloit.*
Ravn, Agnes,	*Merrill.*
Rooney, Minnie,	*Baraboo.*
Ross, Maybelle Emeline,	*Belleville.*
Rudolph, Florence Anne,	*Canton, S. D.*
Rueth, Anna Petronella,	*Sun Prairie.*
Ryan, Winefred Martha Ellen,	*Wausau.*
Sanderson, Katherine Margaret,	*Madison.*
Schwartz, Susie Luella,	*Troy Center.*
Seville, Flavia,	*Lodi.*
Shephard, Ida Dorothy,	*Madison.*
Skelton, Edward,	*Madison.*
Smith, Letha Pearl,	*Richland Center.*
Spilde, Edna Lovisa,	*Lodi.*
Titus, Martin E.,	*Wilton.*
Tormey, Julia Florence,	*Madison.*
Trowbridge, Sarah Esther,	*Madison.*
Turneaure, Florence,	*Madison.*
Verbeck, Edith Vivian,	*Lodi.*
Webb, Delancy,	*Superior.*
West, Bertha,	*Madison.*
Whelan, Letta Helen,	*Madison.*
White, Genevieve Juneau,	*Milwaukee.*
Whyte, Effie Margaret,	*Watertown.*
Wilcox, Lucile,	*Menomonie.*
Wilcox, Elizabeth Foster,	*Madison.*
Winden, Guida Constance	*Madison.*
Williams, Mrs. A. C.,	*Madison.*
Wyman, Grace,	*Madison.*

—106

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SUMMARY OF STUDENTS

GRADUATE SCHOOL—158.

Fellows	18
Scholars	18
Other Graduate Students	122

COLLEGE OF LETTERS AND SCIENCE—1579

Graduate Students	144
Senior Class	273
Junior Class	321
Sophomore Class	331
Freshman Class	402
Adult Special Students	82
Two Year Pharmacy Students	26

Included in the above are the following:

Course in Commerce—222.

Senior Class	23
Junior Class	36
Sophomore Class	69
Freshman Class	85
Adult Special Students	9

Course in Philosophy—77.

Senior Class	32
Junior Class	45

Course in Pharmacy—32.

Graduate Student		1
Four Years' Course.	Seniors	2
	Junior	1
	Sophomore	1
	Freshman	1
Two Years' Course..	Second Year	12
	First Year	14

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COLLEGE OF ENGINEERING—768.

Graduate Students		7
Senior Class—113.		
Civil Engineering Course		30
Mechanical Engineering Course		19
Electrical Engineering Course		43
General Engineering Course		17
Chemical Engineering Course		4
Junior Class—139.		
Civil Engineering Course		40
Mechanical Engineering Course		35
Electrical Engineering Course		40
General Engineering Course		19
Chemical Engineering Course		5
Sophomore Class—210.		
Civil Engineering Course		70
Mechanical Engineering Course		40
Electrical Engineering Course		76
General Engineering Course		16
Chemical Engineering Course		8
Freshman Class		244
Special Students		10
Adult Special Students		45

COLLEGE OF AGRICULTURE—628.

Graduate Students			7
Long Course..	Seniors	12	
	Juniors	24	
	Sophomores	36	
	Freshmen	47	
	Special Students	5	
	Adult Special Students	12	136
Short Course..	Second Year	137	
	First Year	185	322
Dairy Course			163

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COLLEGE OF LAW—154.

Senior Class	46
Middle Class	54
Junior Class	31
Seniors in Letters and Science Electing Law Studies	18
Special Students	5

SCHOOL OF MUSIC—209.

Collegiate	Graduate Students	8	
	Fourth Year	13	
	Third Year	23	
	Second Year	59	
	First Year	106	209
Deduct students enrolled in other colleges		76	133

SUMMER SESSION OF 1905.

Letters and Science—		
Graduate Students	125	
Undergraduates and teachers	295	
Apprentices and Artisans—		
Graduate Students	12	
Undergraduates and teachers	80	
Dairy School	16	528
Deduct students now attending the University	199	329
Total number of students		3591
Twice enumerated 20, leaving as actual number		3571

In the enumeration of special students above, the classification by courses is as follows: Letters and Science, fourth year 2; third year 5; second year 19; first year 56; Civil Engineering, third year 2; second year 2; Mechanical Engineering, third year 5; second year 6; Electrical Engineering, third year 3; second year 5; General Engineering, second year 3; first year students in Engineering 29.

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APPENDIX

BULLETIN OF THE UNIVERSITY OF WISCONSIN

The Bulletin of the University of Wisconsin is published bi-monthly at Madison. For postal purposes, all issues in all series of the Bulletin are included in one consecutive numbering as published, a numbering which has no relation whatsoever to the arrangement in series and volumes.

Under the heading General series are included the annual University catalogue, announcements of the various colleges and courses of the University, etc. The numbers in the General series are of varying size and are not designed to form volumes with title-pages and indexes. To date, the following serial numbers of the Bulletin are issues in the General series, viz., Nos. 24, 27, 29, 34, 35, 37, 44-46, 48, 52, 53, 56-61, 64-77, 80-82, 84-95, 97, 98, 104, 105, 107, 109-114, 116-118, 120-128.

The Economics and Political Science series, the History series, the Philology and Literature series, the Science series, and the Engineering series contain original papers by persons connected with the University. The series formerly issued as the Economics, Political Science, and History series was discontinued with the completion of the second volume, and has been replaced by the Economics and Political Science series and the History series.

The Committee of Publication of the five above-named series consists of:

WALTER M. SMITH, *Chairman.*

WILLARD G. BLEYER, *Secretary.*

VICTOR COFFIN, *Editor of the History Series.*

EDWARD KREMERS, *Editor of the Science Series.*

EDWARD R. MAURER, *Editor of the Engineering Series.*

EDWARD T. OWEN, *Editor of the Philology and Literature Series.*

ALLYN A. YOUNG, *Editor of the Economics and Political Science Series.*

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A. Economics, Political Science, and History Series

VOLUME I

(Complete in three numbers, with title-page, table of contents, and index.)

No. 1. The geographical distribution of the vote of the thirteen states on the Federal Constitution, 1787-8, by Orin Grant Libby. 1894. 8+116 p. 2 pl. 75 cents. *Out of print.*

No. 2. The finances of the United States, from 1775 to 1789, with especial reference to the budget, by Charles Jesse Bullock. 1895. 8+157 p. 75 cents.

No. 3. The Province of Quebec and the early American revolution. A study in English-American colonial history, by Victor Coffin. 1896. 17+288 p. 75 cents.

VOLUME II

(Complete in four numbers, with title-page, table of contents, and index.)

No. 1. New governments west of the Alleghanies before 1780, by George Henry Alden. 1897. 7+74 p. 50 cents.

No. 2. Municipal history and present organization of the city of Chicago, by Samuel Edwin Sparling. 1898. 188 p. 75 cents.

No. 3. Congressional grants of land in aid of railways, by John Bell Sanborn. 1899. 130 p. 50 cents.

No. 4. English common law in the early American colonies, by Paul Samuel Reinsch. 1899. 64 p. 50 cents.

B. Economics and Political Science Series

VOLUME I

No. 1. The decline of landowning farmers in England, by Henry Charles Taylor. 1904. 66 p. 25 cents.

No. 2. History of agriculture in Dane County, Wisconsin, by Benjamin Horace Hibbard. 1904. 148 p. 75 cents.

No. 3. A history of the Northern Securities case, by Balthaser Henry Meyer. *In preparation.*

C. History Series

VOLUME I

No. 1. The origin of the system of land grants for education, by Joseph Schafer. 1902. 53 p. 35 cents.

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No. 2. The king's household in England before the Norman conquest, by Laurence Marcellus Larson. 1904. 157 p. 50 cents.

No. 3. Lincoln's suspension of habeas corpus and the act of March 3, 1863, by George Clarke Sellery. *In preparation.*

D. Philology and Literature Series

VOLUME I

(Complete in four numbers, with title-page, table of contents, and index.)

No. 1. On the development of American literature from 1815 to 1833, by William B. Cairns. 1898. 4+87 p. 35 cents.

No. 2. The treatment of nature in the poetry of the Roman Republic, by Katharine Allen. 1899. 131 p. 50 cents.

No. 3. The Great Mother of the gods, by Grant Showerman. 1901. 113 p. 4 pl. 45 cents.

No. 4. Wortlehre des Adjectivs im Altsächsischen, by Edwin Carl Roedder. 1901. 81 p. 35 cents.

VOLUME II

(Complete in three numbers, with title-page, table of contents, and index.)

No. 1. The time elements of the Orestean trilogy, by Jonathan Bailey Browder. 1902. 76 p. 35 cents. *Out of print.*

No. 2. Schillers Einfluss auf Grillparzer, eine litterarhistorische Studie, by Otto Edward Lessing. 1902. 128 p. 50 cents.

No. 3. The philosophy of Ernest Renan, by Herman Gustav Adolph Brauer. 1903. 175 p. 50 cents. *Out of print.*

VOLUME III

No. 1. Das Sprichwort bei Hans Sachs: Teil 1, Verzeichnis der Sprichwörter, by Charles Hart Handschin. 1904. 153 p. 50 cents.

No. 2. The Graecostasis of the Roman Forum and its vicinity, by Charles James O'Connor. 1904. 49 p. 25 cents.

No. 3. The dramatic criticism of Samuel Taylor Coleridge with reference to the influence of August Wilhelm von Schlegel, by Anna Augusta Helmholtz. *In preparation.*

No. 4. German literature in American magazines prior to 1846, by Scott Holland Goodnight. *In preparation.*

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E. Science Series

VOLUME I

(Complete in five numbers, with title-page, table of contents, and index.)

No. 1. On the speed of the liberation of iodine in mixed solutions of potassium chlorate, potassium iodide, and hydrochloric acid, by Herman Schlundt. 1894. 33 p. 35 cents.

No. 2. On the quartz keratophyre and associated rocks of the north range of the Baraboo Bluffs, by Samuel Weidman. 1895. 22 p. 3 pl. 25 cents.

No. 3. Studies in spherical and practical astronomy, by George Cary Comstock. 1895. 51 p. 40 cents.

No. 4. A contribution to the mineralogy of Wisconsin, by William Herbert Hobbs. 1895. 48 p. 5 pl. 40 cents.

No. 5. Analytic keys to the genera and species of North American mosses, by Charles Reid Barnes and Frederick DeForest Heald. 1896. 10+212 p. $1.00.

VOLUME II

(Complete in six numbers, with title-page, table of contents, and index.)

No. 1. The action of solutions on the sense of taste, by Louis Kahlenberg. 1898. 31 p. 35 cents.

No. 2. Aspects of mental economy, by M. Vincent O'Shea. 1900. 166 p. 2 pl. 75 cents. *Out of print.*

No. 3. Contributions from the Anatomical Laboratory of the University of Wisconsin, by William Snow Miller. 1900. 48 p. 13 pl. 40 cents.

No. 4. The anomalous dispersion of cyanin, by Carl Edward Magnusson. 1900. 50 p. 7 pl. 30 cents.

No. 5. The theory of electrolytic dissociation, as viewed in the light of facts recently ascertained, by Louis Kahlenberg, with the coöperation of Arthur Alexander Koch and Roy Dykes Hall. 1901. 55 p. 40 cents.

No. 6. On the dielectric constants of pure solvents, by Herman Schlundt. 1901. 37 p. 25 cents.

VOLUME III

No. 1. On the sensitiveness of the coherer, by Edson Ray Wolcott. 1901. 20 p. 20 cents.

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No. 2. From the borderland between crystallography and chemistry, by Victor Goldschmidt. 1904. 18 p. 25 cents.

No. 3. A contribution to the chemistry of the tellurates, by Edgar Burton Hutchins, Jr. 1905. 46 p. 25 cents.

No. 4. Anatomy in America, by Charles Russell Bardeen. 1905. 122 p. 50 cents.

No. 5. The joint system in the rocks of southwestern Wisconsin and its relation to the drainage network, by Edmund Cecil Harder. *In preparation.*

F. Engineering Series

VOLUME I

(Complete in ten numbers, with title-page, table of contents, and index.)

No. 1. Track, by Leonor Fresnel Loree. 1894. 24 p. 25 cents. *Out of print.*

No. 2. Some practical hints in dynamo design, by Gilbert Wilkes. 1894. 16 p. 25 cents. *Out of print.*

No. 3. The steel construction of buildings, by Corydon Tyler Purdy. 1894. 27 p. 25 cents. *Out of print.*

No. 4. The evolution of a switchboard, by Arthur Vaughan Abbott. 1894. 32 p. 4 pl. 35 cents. *Out of print.*

No. 5. An experimental study of field methods which will insure to stadia measurements greatly increased accuracy, by Leonard Sewell Smith. 1895. 45 p. 1 pl. 35 cents. *Out of print.*

No. 6. Railway signaling, by William McCollough Grafton. 1895. 38 p. 35 cents.

No. 7. Emergencies in railroad work, by Leonor Fresnel Loree. 1895. 42 p. 35 cents.

No. 8. Electrical engineering in modern central stations, by Louis Aloysius Ferguson. 1896. 33 p. 35 cents.

No. 9. The problem of economical heat, light, and power supply for building blocks, school houses, dwellings, etc., by Gerdt Adolph Gerdtzen. 1896. 69 p. 45 cents.

No. 10. Topographical surveys, their methods and value, by John Lane Van Ornum. 1896. 39 p. 35 cents.

VOLUME II

(Complete in ten numbers, with title-page, table of contents, and index.)

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No. 1. A complete test of modern American transformers of moderate capacities, by Arthur Hillyer Ford. 1896. 88 p. 35 cents.

No. 2. A comparative test of steam injectors, by George Henry Trautmann. 1897. 34 p. 25 cents.

No. 3. The superintendent of bridges and buildings, by Onward Bates. 1898. 30 p. 25 cents.

No. 4. Some unrecognized functions of our state universities, by John Butler Johnson. 1899. 20 p. 25 cents. *Out of print.*

No. 5. The transcontinental triangulation along the thirty-ninth parallel, by John Fillmore Hayford. 1900. 22 p. 6 pl. 25 cents.

No. 6. The chemical engineer, by Magnus Swenson. 1900. 13 p. 25 cents.

No. 7. Recently improved methods of sewage disposal, by John Butler Johnson. 1900. 19 p. 25 cents.

No. 8. An experimental study of the corrosion of iron under different conditions, by Carl Hambuechen. 1900. 47 p. 19 pl. 30 cents.

No. 9. The progress of the ceramic industry, by Edward Orton, Jr. 1903. 23 p. 25 cents.

No. 10. The effect of frequency on the steadiness of light emitted from an incandescent lamp, by Harold Seaman. 1904. 47 p. 25 cents.

VOLUME III

No. 1. An investigation of rotations produced by current from a single-phase alternator, by Arthur Curtis Scott. 1904. 162 p. 50 cents.

No. 2. The sources of water supply in Wisconsin, by William Gray Kirchoffer. 1905. 88 p. 50 cents.

No. 3. An investigation of the borides and silicides, by Oliver Patterson Watts. *In preparation.*

Persons who reside in the state of Wisconsin may obtain copies of the Bulletin free by applying to the Secretary of the Regents and paying the cost of transportation. Certain numbers, as indicated in the preceding list, are out of print and can no longer be furnished. Bulletins issued since May 1, 1898, are entered as second-class mail matter and no charge is required by the University to cover cost of postage. The postage required for such

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of the earlier numbers as can now be furnished is as follows: Econ. ser., Vol. 1, No. 2, 8c; No. 3, 13c; Vol. 2, No. 1, 4c; Phil. ser., Vol. 1, No. 1, 5c; Sci. ser., Vol. 1, No. 1, 2c; No. 2, 2c; No. 3, 3c; No. 4, 3c; No. 5, 10c; Vol. 2, No. 1, 2c; Eng. ser., Vol. 1, No. 6, 2c; No. 7, 3c; No. 8, 2c; No. 9, 4c; No. 10, 3c; Vol. 2, No. 1, 4c; No. 2, 2c.

Any number of the Bulletin now in print will be sent postpaid to non-residents from the office of the Secretary of the Regents on receipt of the price given in the list printd above. Title-pages, tables of contents, and indexes to completed volumes will be furnished without cost on application to the University Librarian. Communications having reference to an exchange of publications should be addressed to the Librarian of the University of Wisconsin, Madison, Wis.

PUBLICATIONS OF THE WASHBURN OBSERVATORY

From the Washburn Observatory have been issued the publications of the Washburn Observatory, Vols. 1-11 (1882-1902). Correspondence regarding these publications should be addressed to the Director of the Washburn Observatory, Madison, Wis.

PUBLICATIONS OF THE AGRICULTURAL EXPERIMENT STATION

The Agricultural Experiment Station has issued Annual Reports, Nos. 1-22 (1883-1905), and Bulletins, Nos. 1-135 (1883-1906). Many of these publications are now out of print, but such annual reports and bulletins as are now available are sent free to all residents of the state upon request. A list of issues to date of the bulletins may be obtained from the Director of the Agricultural Experiment Station, Madison, Wisconsin, to whom all correspondence regarding these publications should be addressed.

BULLETIN OF THE WISCONSIN FARMERS' INSTITUTES

From the office of Farmers' Institutes has been issued the Wisconsin Farmers' Institutes Bulletin, Nos. 1-19 (1887-1905). Correspondence regarding this publication should be addressed to the Superintendent of Agricultural Institutes, Madison, Wisconsin.

Ph. D. THESES OF THE UNIVERSITY OF WISCONSIN

(List of theses printed since the publication of the Catalogue for 1904-05.)

Hadley, Stephen Marshall, Ph. D., 1904.

Relative masses of binary stars. Reprinted from Popular Astronomy, Vol. 13, nos. 5 and 6. 21 p. Madison, 1905.

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Hibbard, Benjamin Horace, Ph. D., 1902.
The history of agriculture in Dane County, Wisconsin. Reprinted from the Bulletin of the University of Wisconsin, Economics and Political Science series, Vol. 1, p. 67-214. Madison, 1904.

Hutchins, Edgar Burton, Jr., Ph. D., 1905.
A contribution to the chemistry of the tellurates. Reprinted from the Bulletin of the University of Wisconsin, Science series, Vol. 3, p. 39-84. Madison, 1905.

Ingersoll, Leonard Rose, Ph. D., 1905.
On the Faraday and Kerr effects in the infra-red spectrum. Reprinted from the Philosophical Magazine, Series 6, Vol. 11, p. 41-72. Madison, 1906.

Nichols, Susie Percival, Ph. D., 1904.
The nature and origin of the binucleated cells in some basidiomycetes. Reprinted from the Transactions of the Wisconsin Academy of Sciences, Arts, and Letters, Vol. 15, p. 30-70. Madison, 1904.

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INDEX

Academic Course, School of Music 337
Accredited Schools,
Committee on..... 27
List of..... 75
North Central Association List 82
Administration, Federal..... 135
State 135
Administrative Committee of Graduate School..... 27
Admission,
of Graduates of Normal Schools, ... 72
of Special Students..... 74
of Students from other Colleges 73
to Colleges and Courses..... 62
to University.....60, 71, 74
to the Bar..... 293
upon Certificate 71
Advisers, Student 52, 105
Aesthetics 108
Agriculture, College of..... 309
Admission 314
Assistants 26
Courses of Instruction..... 314
Dairy Certificates 330
Dairy Courses 329, 330
Degrees 315
Departments of Instruction... 317
Faculty 309
Farmers' Course 330
Fees and Expenses.....85, 313
General Information 310
Libraries 312
Live Stock..... 312
Long Course..... 315
Plan of Education..... 313
Short Course..... 328
Societies 313
Staff of Instruction..... 309
Summer Dairy Course..... 330
Winter Dairy Course..... 329
Agricultural,
Bacteriology 324
Chemistry 317
Economics 126, 128, 327
Engineering 326
Experiment Station..... 331
Hall 310
Industries 218
Laboratories 46
Agronomy 325
Algebra 177
Engineering Courses..... 239
Course in Commerce..... 222
Algology 202
Alternating Currents..... 287
Current Machinery..... 287
Alumni Publications 59
Anatomy 203
Laboratory 45
Summer Courses..... 374
Anglo-Saxon and Middle English 170
Animal Husbandry 320
Applied, Electrochemistry...260, 289
Electromagnetism 286
Electrometallurgy 289
Mechanics 277
Appointment Committee..... 27
Arabic 147
Aramaic 147
Archaeology 144
Assaying 182
Assyrian 147
Astronomical Library..... 41
Astronomy 188
College of Engineering..... 274
Athletic Council..... 27
Bachelor's Degrees, Requirements for.....98, 104
Bacteriology 207
College of Agriculture..... 324
Laboratory 46
Band 342
Banjo 341
Banking 217
Bar, Admission to..... 293
Biology 195
of Water Supplies..... 208
in Engineering..... 275
Laboratories 44
Board, Chadbourne Hall..... 89
Board and Rooms..... 89
Board of Visitors..... 9
Botany 200
Laboratory 44
Summer Courses 375
Bridge Design 282
Bryology 201
Buildings, Grounds and..... 37
Bulletin of the University..... 58
Business Administration..... 126
Butter Making..... 322
Calendar 7
Camp Randall..... 37
Canals, and Rivers 280
Certificate, Admission upon.... 71
Certificates, Teachers'.....106, 114
Chadbourne Hall.....31, 88
Board 89
Rent 88
Charges and Fees..... 84
Charities and Correction..... 131
Cheese Making..... 322

Digitized by Google

Chemical, Collection..... 50
Engineering, Course in..... 261
Laboratories 42
Technology 290
Chemistry 180
Agricultural 317
College of Engineering..... 272
Course in Commerce..... 223
Course in Pharmacy..... 229
Summer Courses..... 373
Choral, Practice..... 339
Union 342
Civil Engineering Course..... 229
Clubs, Literary and Scientific,.. 56
Code, Practice..... 303
Collection,
Chemical 50
Drug 50
Colleges in the University..... 36
Collegiate Course, School of Music 336
Colloquium, Physics..... 187
Colonial Politics..... 135
Commerce, Course in..... 214
Preparation of Teachers..... 224
Purpose 215
Special Lecturers..... 224
Commercial Course for Engineers 223, 269
Commercial Law..... 127
Committees, University Faculty 27
Common Law 299
Communicable Diseases..... 207
Concerts 342
Conference, Historical..... 122
Constitutional Law..... 134
Construction, and Pattern Work 292
Materials of 277
Consular Service 218
Contracts and Specifications.... 291
Counterpoint 213
Courts 307
Criminal Law 300
Cytology 200
Dairy, Building..... 311
Courses 329, 330
Husbandry 321
Work, Advanced 329
Debates, Joint 56
Degrees 91, 92
Conferred in 1905..... 393
in Engineering 249
in Pharmacy..... 228
Requirements for Baccalaureate 98
Requirements for Higher.... 387
Dendrology 201
Departments of Instruction 107
Diplomas as State Certificates.. 106
Discipline, Committee on..... 27
Doctor of Philosophy, Requirements for Degree of..... 390
Dramatic Reading 169
Drawing, Topographic 278
Mechanical 275
Drill, Military 88
Drug Collection 50
Dynamos, Construction of..... 286
Economics 125
Agricultural 327
of Agriculture 128
Course in Commerce..... 219
Course in Home..... 233
Home 211
Summer Courses 368
Geography 126
Editors of the Bulletin..... 27
Education 110
Summer Courses 366
Election of Studies.....100, 101
Electrical, Engineering Course 258
Installations 283
Electricity and Magnetism..... 187
Electric, Lighting 288
Railways 289
Electrochemistry 273, 289
Course, Applied..... 260
Electromagnetism 286
Electrometallurgy 289
Electron Theory 188
Elementary Law 134
Elocution 169
Embryology 204
Engineering and Commerce Course 269
Engineering, College of..... 236
Admission 239
Course of Study.....249, 253
Degrees 250
Equipment 241
Faculty 236
Fees and Expenses..... 85
Five and Six-year Courses.... 267
Laboratories and Apparatus.. 242
Libraries 242
Language Requirements 252
Museum 249
Organization of 238
Engineers, Commercial Course for 223
English 167
College of Engineering..... 270
Course in Commerce..... 221
Language 170
Literature 172
Summer Courses 370
Entomology 199
Entrance, Examinations..... 71
Requirements 60
Time of 60
Equipment, University 37
Equity 301
Ethics 108
Evidence 303
Examinations, University 71
Law 297
Expenses, Fees and..... 84
for Graduate Instruction..... 392
Experiment Station 331
Officers of..... 331
Publications of 332
Extension, University..... 347
Faculty 11
Committees of..... 27
Farmers' Course 330
Farmers' Institute Bulletin..... 334
Institutes 332

Digitized by Google

Feeding Problems..... 321
Fees,
General 84
College of Agriculture..... 85
College of Engineering..... 85
College of Law..... 86
College of Letters and Science 85
Course in Commerce..... 225
Course in Pharmacy..... 85
Graduate School 392
Gymnasium Practice 88
Higher Degrees 92
Laboratory 87
School of Music..... 86
Summer School of Library Science 86
Summer Session 86, 366
Tuition and Incidentals..... 85
Fellowships 384
Honorary 385
Fellows, List of..... 406
Finance 131
Five and Six-Year Courses, College of Engineering..... 267
Food Materials 211
Forensics 168
Forge Work 292
French 148
College of Engineering..... 270
Course in Commerce..... 222
Summer Courses..... 374
Funds, Undergraduate 53
Loan 54
General Engineering Course.... 263
Geodesy 278
Geodetic Engineering..... 278
Geology 190
College of Engineering..... 274
Course in Commerce..... 223
Summer Courses..... 374
Geological Seminary.....44, 194
German 156
College of Engineering..... 270
Course in Commerce..... 221
Literature 161
Major in,..... 157
Philology 165
Scholarships 53, 54
Summer Courses..... 370
Germanistische Gesellschaft.... 158
Gifts to the University..... 33
Gothic 165
Government and Politics..... 134
Government of the University.. 35
Graduate Club 57
Graduate School..... 378
Administrative Committee.... 382
Admission to 386
Aims and Methods..... 383
Clubs and Societies..... 384
Doctor's Degree 390
Expenses for Graduate Instruction 392
Faculty 378
Fellowships and Scholarships. 384
Organization 382
Requirements for Higher Degrees 387
Graduates,
of State Normal School.....72, 104
Resident 406
Summary of 405
Graduation, in less than four years 105
Requirements for 91
Greek 137
Hellenistic 145
Journal Club 140
Summer Courses 369
Grounds and Buildings..... 37
Guitar, Banjo, and Mandolin... 341
Gymnasium 355
Women's 357
Fees 88
Suits 357
Gymnastic Exercises 356
Gymnastics,
Course in Teachers'..... 358
for Men 355
for Women 357
Harmony 213
Harmony and Counterpoint.... 340
Heating and Ventilation..... 283
Hebrew 145
History 145
Hellenistic Greek 145
Herbarium, University..... 49
Higher Degrees..... 92
Conferred in 1905..... 399
Fees 87
Requirements for..... 387
Hiram Smith Hall..... 311
Histology 204
History 114
Course in Commerce..... 221
Major in, ... 115
of Music 214, 340
Special Lectures 122
Summer Courses..... 367
of University..... 29
Home Economics..... 211
Course in..... 233
Honorary Degrees,
Conferred in 1905..... 403
Honorary Fellowships..... 385
Honors 52
Awarded in 1905..... 403
Horticulture 323
Horticultural-Physics Building. 311
House Decoration..... 211
Hydraulic Engineering..... 280
Hygiene 207
Summer Course..... 375
Laboratory, State..... 46
Illinois Practice..... 305
Illumination and Photometry... 289
Incidental Fees 85
Indexing, Committee on..... 28
Inspecting Tour 252
Installations, Electrical 288
Institute Conductors..... 332
Instructors and Assistants..... 18
Insurance 130
International Law..... 135
Italian 152

Digitized by Google

Chemical, Collection..... 50
Engineering, Course in..... 261
Laboratories 42
Technology 290
Chemistry 180
Agricultural 317
College of Engineering..... 272
Course in Commerce..... 223
Course in Pharmacy..... 229
Summer Courses..... 373
Choral, Practice..... 339
Union 342
Civil Engineering Course..... 229
Clubs, Literary and Scientific... 56
Code, Practice..... 303
Collection,
Chemical 50
Drug 50
Colleges in the University..... 36
Collegiate Course, School of Music 336
Colloquium, Physics..... 187
Colonial Politics..... 135
Commerce, Course in..... 214
Preparation of Teachers..... 224
Purpose 215
Special Lecturers..... 224
Commercial Course for Engineers 223, 269
Commercial Law..... 127
Committees, University Faculty 27
Common Law 299
Communicable Diseases..... 207
Concerts 342
Conference, Historical..... 122
Constitutional Law..... 134
Construction, and Pattern Work 292
Materials of 277
Consular Service 218
Contracts and Specifications.... 291
Counterpoint 213
Courts 307
Criminal Law 300
Cytology 200
Dairy, Building..... 311
Courses 329, 330
Husbandry .....
Work, Advanced 321
Debates, Joint 329
Degrees 56
Conferred in 1905.....91, 92
in Engineering 393
in Pharmacy..... 249
Requirements for Baccalaureate 228
Requirements for Higher.... 98
Dendrology 387
Departments of Instruction 201
Diplomas as State Certificates.. 107
Discipline, Committee on..... 1
Doctor of Philosophy, Requirements for Degree of.....
Dramatic Reading .....
Drawing, Topographic .....
Mechanical .....
Drill, Military .....
Drug Collection .....
Dynamos, Construction .....

Economics 125
Agricultural 327
of Agriculture 128
Course in Commerce..... 219
Course in Home..... 233
Home 211
Summer Courses 368
Geography 126
Editors of the Bulletin..... 27
Education 110
Summer Courses 100, 101
Election of Studies..... 366
Electrical, Engineering Course 258
Installations 288
Electricity and Magnetism..... 187
Electric, Lighting 288
Railways 273, 289
Electrochemistry 289
Course, Applied..... 260
Electromagnetism 286
Electrometallurgy 289
Electron Theory 188
Elementary Law 134
Elocution 169
Embryology 204
Engineering and Commerce Course 269
Engineering, College of..... 236
Admission 249, 253
Course of Study..... 239
Degrees 250
Equipment 241
Faculty 236
Fees and Expenses..... 85
Five and Six-year Courses.... 267
Laboratories and Apparatus.. 242
Libraries 242
Language Requirements 252
Museum 249
Organization of 238
Engineers, Commercial Course for 223
English 167
College of Engineering..... 270
Course in Commerce..... 221
Language 170
Literature 171
Summer Courses .....
Entomology .....
Entrance, Examinations .....
Requirements .....
Time of .....
Equipment .....
Equity .....
Ethics .....
Ex... .....

Digitized by Google

Feeding Problems..... 321
Fees,
General 84
College of Agriculture..... 85
College of Engineering..... 85
College of Law..... 86
College of Letters and Science 85
Course in Commerce..... 225
Course in Pharmacy..... 85
Graduate School 392
Gymnasium Practice 88
Higher Degrees 92
Laboratory 87
School of Music..... 86
Summer School of Library Science 86
Summer Session 86, 366
Tuition and Incidentals..... 85
Fellowships 384
Honorary 385
Fellows, List of..... 406
Finance 131
Five and Six-Year Courses, College of Engineering..... 267
Food Materials 211
Forensics 168
Forge Work 292
French 148
College of Engineering..... 270
Course in Commerce..... 222
Summer Courses..... 374
Funds, Undergraduate .....
Loan .....
General Engineering Course....
Geodesy .....
Geodetic Engineering.....
Geology .....
College of Engineering.....
Course in Commerce.....
Summer Courses.....
Geological Seminary.....
German .....
College of Engineering.....
Course in Commerce.....
Literature .....
Major in,.....
Philology .....
Scholarships .....
[illegible] Course
[illegible]tische
[illegible]he
[illegible]
[illegible]
[illegible]

Journal Club, Bacteriology..... 209
Greek 140
Physiology 207
Jurisprudence 134
Kinematics of Mechanism..... 285
Labor, Legislation..... 128
Problems 128
Laboratories 42
Agricultural 46
Anatomical 45
Applied Electrochemistry..... 247
Assay 248
Bacteriological 46
Biological 44
Botanical 44
Bridge Engineering 243
Cement 242
Chemical 42
Chemical Engineering 247
College of Engineering..... 242
Electrical 245
Gas and Coal Analysis..... 245
Geological 44
Hydraulic 243
Hygienic, State 46
Mechanical 243
Mineralogical 44
Petrographical 44
Pharmaceutical 227
Physical 43
Practical Pharmacy 227
Psychological 46
Surveying 248
Testing 242
Zoological 45
Laboratory Fees..... 87
Language and Literature Club. 57
Language, English 170
Summer Courses..... 370
Latin 140
Major in, ... 141
Summer Courses..... 369
Law, College of..... 294
Admission to..... 295
Admission to the Bar..... 293
Advance Standing..... 296
Building 307
Clubs 306
Courses of Instruction..... 293
Elective Studies..... 306
Examinations 297
Faculty 294
Fees and Expenses.....86, 308
Graduation 297
History 295
Library 307
Location of..... 307
Objects of Course..... 295
Opening of..... 297
Procedure and Practice Courses 305
Required Studies..... 305
Resources of..... 306
Schools 294
Societies 308
Lecture, Committee..... 28
Courses, University Extension 349
Legislation 136
Letters and Science, College of. 93
Diplomas as State Certificates 106
Electives 100, 101
Fees 85
Graduation in Less than Four Years 105
Major Study and Thesis..... 99
Required Studies..... 98
Requirements for Bachelor's Degree 98
Requirements for Degree in Commerce 103
Requirements for Bachelor of Philosophy Degree..... 104
Requirements for Bachelor of Science Degree..... 104
Staff of Instruction..... 93
Student Advisers.....52, 105
Studies of Freshman Year.... 100
Libraries 39
Law 41
Library,
College of Agriculture..... 312
College of Engineering..... 242
College of Law.....41, 307
Committee 28
Germanic Philology..... 41
Madison Free 42
Owen 41
State Historical..... 41
State Law..... 42
University 40
Wisconsin Academy of Sciences 42
Woodman, Astronomical..... 41
Staff 26
Literary Societies..... 56
Literature, English..... 172
German 161
Summer Courses..... 370
Loan, Committee..... 28
Funds 54
Logic 107
Long Course in Agriculture.... 315
Machine, Construction..... 292
Design 285
Shop 249
Major Study..... 99
Mandolin 341
Manufacturing Industries..... 218
Masonry Construction..... 281
Master's Degrees.....92, 387
Materials of Construction..... 277
Mathematics 176
College of Engineering..... 271
Summer Courses..... 372
Mechanical, Drawing..... 275
Engineering Course..... 256
Laboratory 284
Mechanics, Applied..... 277
Mental Development..... 111
Metaphysics 110
Meteorology 194
Military Drill 88, 359
Roster of Corps..... 361
Science and Tactics..... 359
Mineralogy 190
College of Engineering..... 274
Laboratory 44

Digitized by Google

Mining Engineering..... 265
Modern Language, Engineering. 252
Money and Banking..... 126
Municipal Government..... 135
Museums, University..... 47
Anatomical 47
Engineering 249
Geological and Mineralogical.. 48
Officers of, ... 47
Zoological and Botanical..... 49
Music 212
Courses of..... 336
General Announcement..... 335
History of.....214, 340
Public School 340
School of 335
Staff of Instruction.....25, 335
Tuition 86, 342
Musical, Composition..... 340
Organizations, Committee on.. 28
Theory and Choral Practice 213, 339
Mycology 200
Newspaper Writing..... 167
Nora Samlag..... 57
Normal Course, Physical Training 376
Normal Graduates, Course for.. 104
Norse 154
North Central Association List. 82
Observatory,
Student 346
Washburn 51, 345
Officers of Instruction and Administration 11
Oratory 167
Prizes in..... 55
Orchestra 341
Organ 338
Organization of the University. 36
Organizations, Social and Religious 58
Owen Library of French Works 41
Paleography and Diplomatics.. 121
Paleontology 194
Pattern Work, Construction and 292
Petrography, Laboratory..... 44
Petrology 192, 194
Pharmaceutical, Collection..... 50
Pharmacognosy 202
Pharmacy 210
Course in..... 225
Courses of Study..... 229
Admission to..... 228
Fees 85
Law, Applied to,..... 210
Philology, German..... 165
Slavic, ... 147
Philosophy, Course in..... 107
Ancient 108
German 108
Medieval, ... 108
Modern 108
Summer Courses 367
Physical Examination,
for Men 355
for Women 357
Physical Geography 191
Summer Courses 374
Physical Training..... 355
for Men 355
for Women 357
Summer Courses..... 375
Teachers' Course..... 358
Physics 185
College of Engineering..... 272
Course in Commerce..... 223
Laboratories 43
Summer Courses 373
Physiography 191
Physiology and Physiological Chemistry 205
Piano 337
Poetics 174
Political Economy..... 123
Course in Commerce..... 219
Special Lectures 133
Summer Courses..... 368
Political Science..... 133
Course in Commerce..... 220
Summer Courses..... 369
Politics, Colonial 135
Oriental, ... 135
Practice Courts 305
Pre-Engineering Course..... 251
Pre-Medical Course..... 231
Preparatory Work, Scope of.... 63
Press Law 136
Prizes in Rhetoric and Oratory. 55
Probate Law..... 305
Procedure and Practice Courses 305
Professors 11
Psychology 107, 108
Laboratory 46
Summer Courses..... 367
Public School Music..... 340
Publications,
Committee on Indexing..... 28
Societies and..... 56
Student and Alumni..... 59
University 58
Railway Engineering..... 279
Real Property..... 299
Recitals and Concerts..... 342
Regents 10
Secretary of..... 27
Regiment,
Organization of..... 360
Roster of..... 361
Registration 7
Religious Organizations..... 58
Rent of Rooms, Chadbourne Hall 88
Requirements for Admission.... 60
Resident Graduates, List of..... 406
Rhetoric and Oratory..... 167
Prizes in..... 55
Summer Courses 370
Rivers and Canals 280
Roads and Pavements..... 280
Roman Law..... 134
Romance Languages..... 148
Summer Courses..... 371
Rooms and Board..... 89
Rooms and Time Table, Committee on..... 28
Roster of Cadets..... 361
Russian 148

Digitized by Google

Sanitary Engineering..... 280
Course in..... 255
Sanskrit 140
Scandinavian Languages..... 154
Scholars, List of..... 406
Scholarships,
for Undergraduates..... 53
for Graduates..... 385
Science Club..... 57
Scientific Societies..... 58
Semasiology 171
Seminaries,
Administration 137
American History..... 121
Chemistry 182
Cities 132
Constitutional Law..... 136
Dramatic 170
Economics 132
Education 114
English Literature 176
English Philology 171
Ethics 110
Geology 194
German Literature..... 164
German Philology..... 166
Hebrew 147
Hellenistic Greek..... 147
History 121
International Law..... 136
Latin 144
Legislation 136
Mathematics 180
Medieval History..... 121
Metaphysics 110
Modern European History..... 121
Money and Banking 131
Old French 152
Organic Chemistry..... 182
Physical Chemistry..... 184
Physiology 201
Politics 137
Psychology 110
Rhetoric 170
Shop Practice, Instructors in... 26
Shop Work 292
Short Course in Agriculture.... 328
Slavic Philology..... 147
Social Affairs, Committee on... 28
Social Ethics..... 108
Social Organizations..... 58
Socialism, Modern..... 128
Societies and Publications..... 56
Sociology 125, 131
Soils 318
Spanish 153
College of Engineering..... 271
Course in Commerce..... 222
Summer Courses..... 372
Special Lectures, in History.... 122
in Commerce..... 224
in Economics..... 133
Special Students, Admission of. 74
State Certificates..... 106
State Normal Schools, Graduates of..... 72
Statistics 129
Steam Engineering 282
Structural Engineering..... 281
Student Advisers.....52, 105
Student, Aids..... 54
Observatory 346
Publications 59
Students,
from other Institutions, Admission of..... 73
List of 406
Summary of..... 510
Summary of Graduates..... 405
Summer Dairy Course..... 330
Summer Schools..... 376
for Artisans and Apprentices.. 376
for Library Training..... 377
Summer Session..... 363
Admission 365
Courses 366
Excursions 366
Fees of.....86, 366
Staff 363
Support of the University..... 33
Surveying 278
Laboratory 248
Swedish Literature..... 155
Table of Contents..... 3
Tactics, Military Science and,... 359
Taxation 128
Teachers' Certificate.....106, 114
Technology, Chemical..... 290
Telephones and Telegraph..... 288
Theory, Musical..... 339
Thermodynamics 187
Thesis, Doctor's..... 87
Senior 99
Time Table, Committee on..... 28
Topographic and Geodetic Engineering 278
Torts 300
Transportation 130, 218
Trigonometry 177
Trusts 302
Tuition 85
Undergraduate Scholarships..... 53
Undergraduates, List of..... 414
Uniform, for Military Drill..... 360
Women's Gymnastic..... 357
University Extension..... 347
Expenses 351
Lectures 349
Staff 347
University,
Equipment 37
Examinations 71
Government of..... 35
History of..... 29
Organization of..... 35
Publications of..... 58
Regents 10
Regulations 52
Relation to the High Schools.. 34
Support of..... 33
Year 52
Vacations 7, 52

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Veterinary, Physiology and Hygiene 320
Violin 339
Visitors, Board of..... 9
Voice 338
Washburn Observatory.....48, 345
Publications of..... 58
Staff of..... 345
Water Supplies, Biology of..... 208
Weather Bureau 51
Winter Dairy Course..... 329
Wisconsin Bar..... 298
Zoology 197
Laboratory 45
Summer Courses..... 374

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